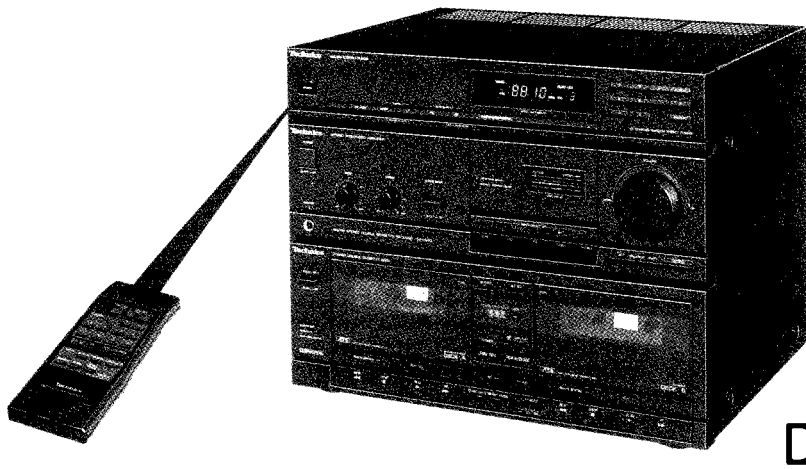
ORDER NO. AD8806166C2

Service Manual

AM/FM STEREO
DOUBLE CASSETTE RECEIVER

Cassette Receiver

SA-X900



Color

(K)...Black Type

Area

Color	Area
(K)	(EG).....F.R. Germany.
(K)	(Ei).....Italy.

DOLBY SYSTEM

Dolby noise reduction manufactured under license from Dolby Laboratories Licensing Corporation.
"Dolby" and the double-D symbol are trade marks of Dolby Laboratories Licensing Corporation.

SPECIFICATIONS

■ AMPLIFIER SECTION

40Hz~16kHz continuous power output	
both channels driven	2×27W (THD 1%, 8Ω)
1kHz continuous power output both channels driven	2×30W (THD 1%, 8Ω)
Total harmonic distortion half power at 1kHz	0.05% (8Ω)
Power bandwidth both channels driven, −3dB	20Hz~40kHz (8Ω)
Damping factor	22 (8Ω)
Input sensitivity and impedance	
PHONO	2.5mV/47kΩ
AUX	150mV/22kΩ
CD	250mV/4.7kΩ
Frequency response	
PHONO	RIAA standard curve ±0.8dB (30Hz~15kHz)
CD	20Hz~50kHz (−3dB)
AUX	20Hz~50kHz (−3dB)
Tone controls	
BASS	50Hz, +10dB~−10dB
TREBLE	12.5kHz, +10dB~−10dB
Super bass	80Hz, +10dB
Load impedance	8Ω~16Ω

■ FM TUNER SECTION

Frequency range	87.50~108.00MHz (0.05MHz step)
Sensitivity	14.7dBf (1.5μV, IHF'58)
S/N 26dB	1.2μV (40Hz mod., 75Ω)
Total harmonic distortion	
1kHz MONO	0.15%
STEREO	0.3%
S/N	
MONO	70dB (78dB, IHF)
STEREO	65dB (71dB, IHF)
Frequency response	20Hz~15kHz, +0.5 dB~−2.0dB
Image rejection at 98MHz	90dB
Stereo separation 1kHz	40dB
Antenna terminals	75Ω (unbalanced)

■ AM TUNER SECTION

Frequency range	522~1611kHz (9kHz step) 530~1620kHz (10kHz step)
Sensitivity (S/N 20dB)	20μV, 300μV/m (999kHz)
Selectivity	55dB (999kHz)
Image rejection	40dB (999kHz)

■ CASSETTE DECK SECTION

DECK system	Auto stop Double cassette system
Track system	4-track, 2-channel
Heads	
REC/PLAY (DECK A)	Solid Permaloy head
PLAY (DECK B)	Solid Permaloy head
Erasing (DECK A)	Double-gap ferrite head

Technics

Matsushita Electric Industrial Co., Ltd.
Central P.O. Box 288, Osaka 530-91, Japan

Motors	DC servo motor
Recording system	AC bias, 100kHz
Erasing system	AC erase, 100kHz
Tape speed	4.8cm/sec. (1-7/8ips)
Frequency response	
CrO_2	30Hz~16kHz (DIN)
	40Hz~15kHz, +3dB, −6dB
NORMAL	30Hz~15kHz (DIN)
	40Hz~14kHz, +3dB, −6dB
S/N	(CrO_2 type tape)
DOLBY NR on	65dB (CCIR)
DOLBY NR off	56dB (A-WTD)
Wow and flutter	0.1% (WRMS)
Fast Forward and Rewind Time	
Approx. 110 seconds with C-60 cassette tape	

■ GENERAL

Power consumption	170W
Power supply	AC 50Hz/60Hz, 220V
Dimensions (W × H × D)	360 × 292 × 308mm
	(14-3/16" × 11-1/2" × 12-1/8")
Weight	7.7kg

Note:
Specifications are subject to change without notice.
Weight and dimensions are approximate.

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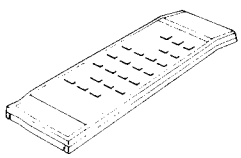
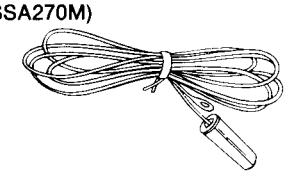
■ ACCESSORIES

- Remote-control transmitter 1
  (EUR64791)

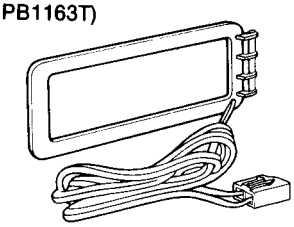


- FM indoor antenna 1
  (SSA270M)

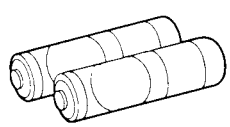


(For continental Europe)

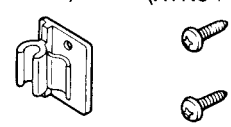
- AM loop antenna 1
  (SPB1163T)



- Batteries 2
  (UM-4NE)



- AM antenna holder 1
  (SMA231M) (XTN3+10AFZ)



D

■ CONNECTIONS

"PHONO" terminals

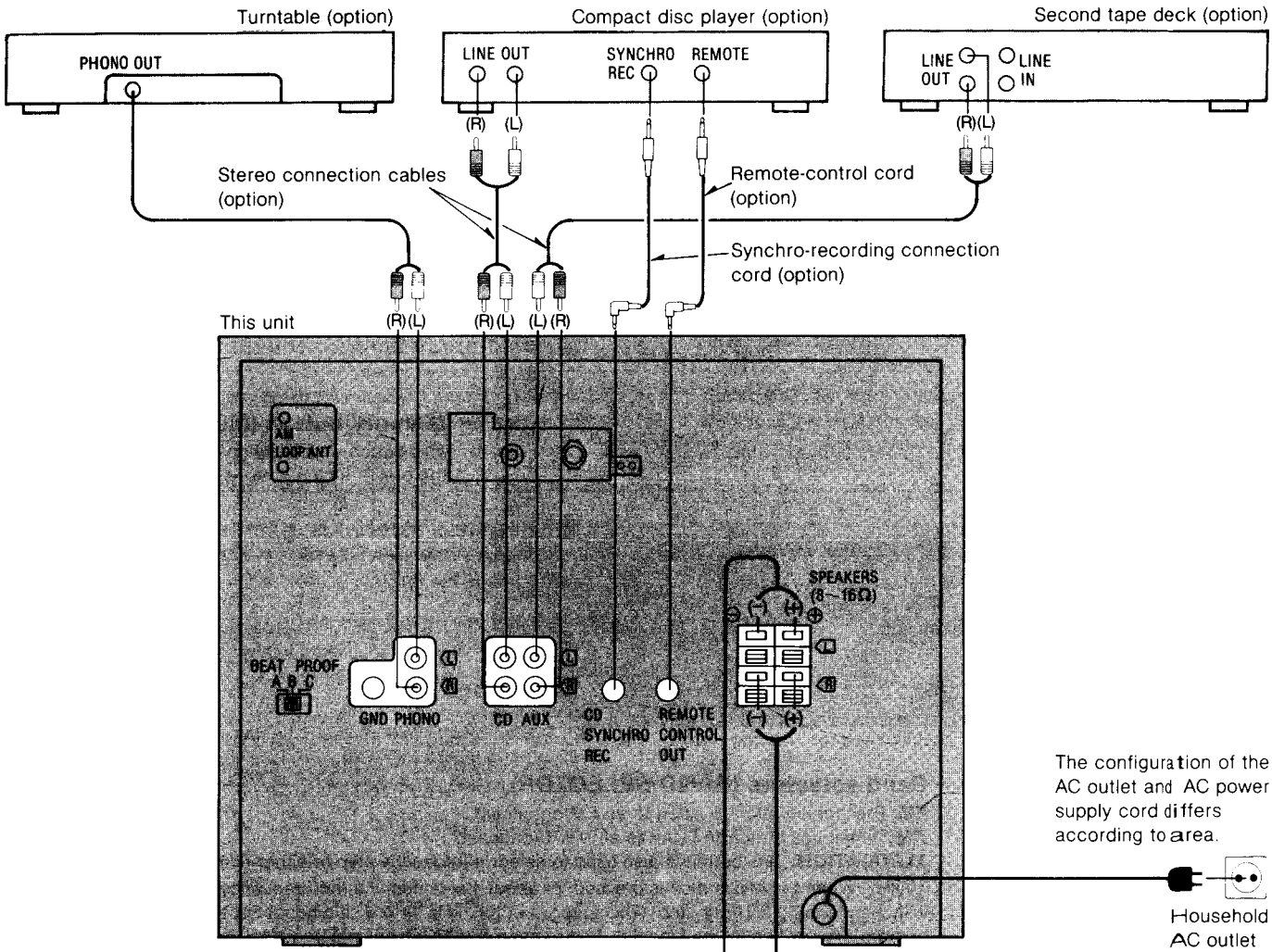
Connect a turntable.
For a turntable with a ground wire, be sure to connect the ground wire to the "GND" terminal of this unit.

"CD" terminals

Connect a compact disc player.
Note: Although the synchro-recording connection cord and the remote-control cord are differentiated in the figure below, actually they are the same shape.

"AUX" terminals

For connection of a second tape deck (for playback only), etc.

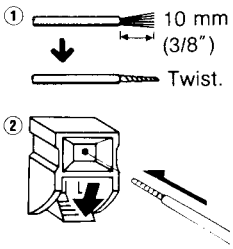


"SPEAKERS" terminals

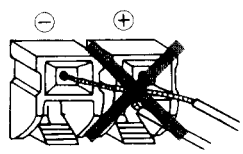
① Twist the core of the connection cords.

② Press the pushbutton, and insert the core until it can no longer be seen.

③ Release the pushbutton, and pull the cord gently to be sure that it is secure.



Note:
To prevent damage to circuitry, never short plus (+) and minus (−) speaker terminals.



■ **Load impedance:** 8~16 Ω

Right speaker system (option)

Left speaker system (option)

Be sure to connect the striped cord to the negative (−) terminal.

D

■ FRONT PANEL CONTROLS AND FUNCTIONS

Tuner section

The indication AM used here includes both MW and LW.

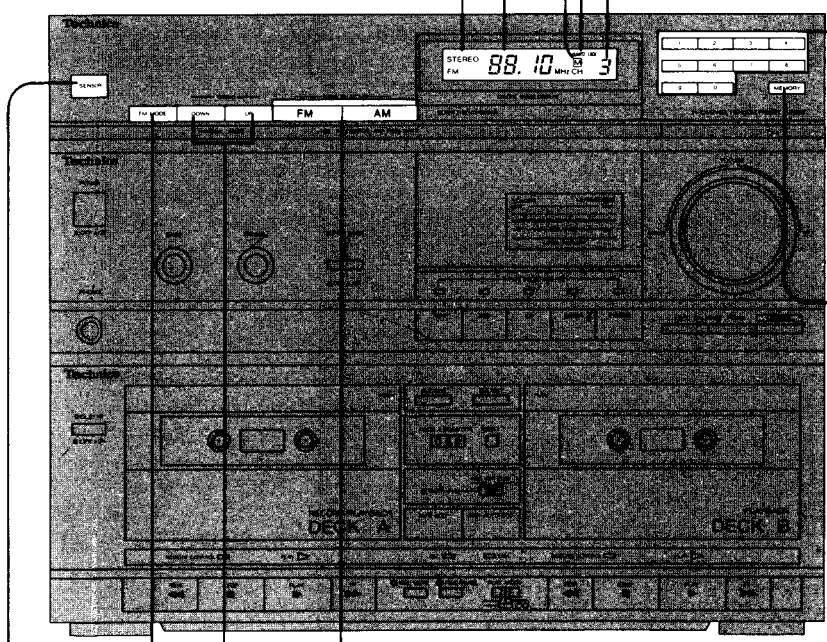
Digital frequency display
The reception frequency of the FM or AM broadcast selected by using the tuning buttons or the preset-tuning buttons is indicated by a digital-type display.

FM stereo indicator (STEREO)
This indicator automatically illuminates when an FM stereo broadcast is being received.

Memory indicator (M)
This indicator illuminates when the memory button is pressed.

Quartz-lock indicator (QUARTZ LOCK)
This indicator illuminates when tuned precisely to an FM or AM station.

Channel display
The channel number selected by the preset-tuning buttons is displayed.



Preset-tuning buttons (1-0)
These buttons are used to preset FM and AM broadcast frequencies into the memory of this unit, and are also pressed to select the desired preset frequencies.

Memory button (MEMORY)
This button is used when preset memory setting of the preset-tuning buttons is made.

Band selectors (BAND SELECTOR)
FM: Press this button to listen to an FM broadcast.
AM: Press this button to listen to an MW broadcast.
ALLOCATION: This button is also used to select a frequency step of either 9 kHz or 10 kHz. When the MW button is pressed for about 4 seconds, the MW frequency step will change to 10 kHz per step. (This step is set to 9 kHz before shipment.) Set to the appropriate position for your locality. In order to return to the original frequency indication, press this button for about 4 seconds again.

Tuning buttons (TUNING)

FM mode selector (FM MODE)

Remote-control signal receptor (SENSOR)

Amplifier section

Muting indicator (MUTING)

Input selectors/indicators (INPUT SELECTOR)
These selectors are used to select the sound source to be heard, such as a disc, radio broadcasts, etc. The corresponding input selector indicator illuminates during operation to indicate the selected sound source.

Volume/balance level indicators (VOLUME/BALANCE)
These indicators usually show the volume level; when the balance control is pressed, however, the position of balance level is displayed for five seconds, after which the display returns again to indication of the volume level.

Super bass switch (SUPER BASS)

Balance controls (BALANCE)

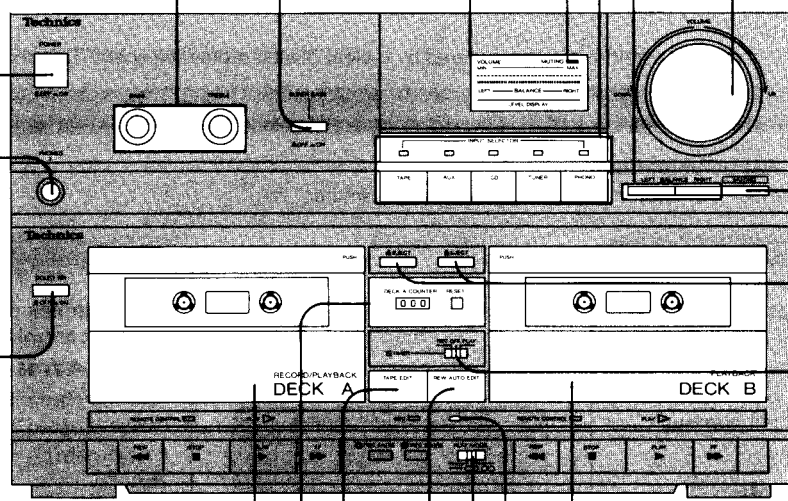
Tone controls (BASS/TREBLE)

Volume control (VOLUME)

Power switch (POWER)

Muting switch (MUTING)
Press this switch when a disc is being changed or to temporarily reduce the volume level (approx. 1/10).

Headphones jack (PHONES)



Cassette deck section

Eject buttons (▲ EJECT)

Dolby noise-reduction switch (DOLBY NR)

Timer stand-by switch (TIMER)

Cassette holder
Be sure to press the upper side of the cassette holder (marked "PUSH") to close it.

Cassette holder

Editing mode indicator (EDIT)

Playback mode selector (PLAY MODE)

"DECK A" counter/reset button (DECK A COUNTER/RESET)
This indicates the amount of tape travel of "DECK A". When this button is pressed, the readout will be reset to "000".

Automatic rewind/edit-recording button (REW AUTO EDIT)
This button can be used to automatically rewind tapes to their beginning and then begin an edit-recording.

Edit-recording button (TAPE EDIT)
This button is used when an edit-recording is made.

When using "DECK A"

Recording indicator (REC)

Playback indicator (PLAY)

Remote-control signal indicator (REMOTE CONTROL)

Rewind button (REW/◀◀)

Stop button (STOP/■)

Playback button (PLAY/▶)

Fast-forward button (FF/▶▶)

Record-muting button (● REC MUTE)

Recording pause button (● REC PAUSE)

When using "DECK B"

Remote-control signal indicator (REMOTE CONTROL)

Playback indicator (PLAY)

Fast-forward button (FF/▶▶)

Playback button (PLAY/▶)

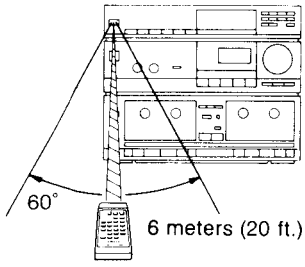
Stop button (STOP/■)

Rewind button (REW/◀◀)

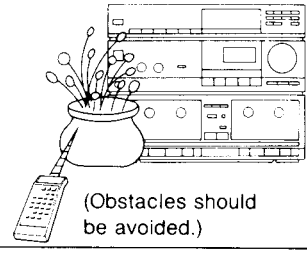
■ REMOTE-CONTROL TRANSMITTER (EUR64791)

Operation notes

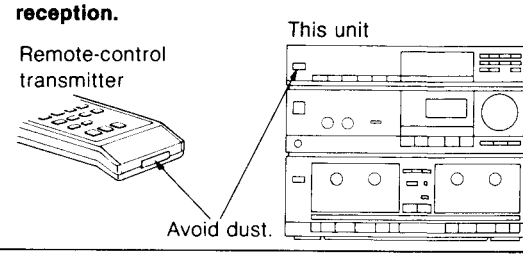
Use the remote-control transmitter within 6 meters.



Face the remote-control transmitter toward the remote-control signal receptor of this unit.



Be sure the transmitter part of the remote-control transmitter and the receptor part of this unit are free from dust. Excessive dust might prevent reception.



Note:
The control panel of the remote-control transmitter may be covered by a clear plastic protective sheet. This sheet may be removed if desired.

Operation

Be sure to turn the unit's power on before use.
Note that power can not be turned on and off by the remote-control transmitter.

While listening to music

Amplifier muting button (MUTING)

Press this button to temporarily reduce the volume level. The volume level is attenuated by 20 dB. (approx. 1/10)
Press once again to return to the previous volume level.

Amplifier volume controls (VOLUME/▼ DOWN • ▲ UP)

Adjust the volume level.
(The volume level is indicated by the volume/balance level indicators on this unit.)

Tuner controls

Tuner preset-tuning buttons

Press to select a preset "channel".

Cassette deck controls

"DECK A/B"

Press to select "DECK A" or "DECK B". (The remote-control indicator on this unit will illuminate.)

"▶ PLAY":

Press to playback or record.

"■ STOP":

Press to stop the tape.

"◀◀REW":

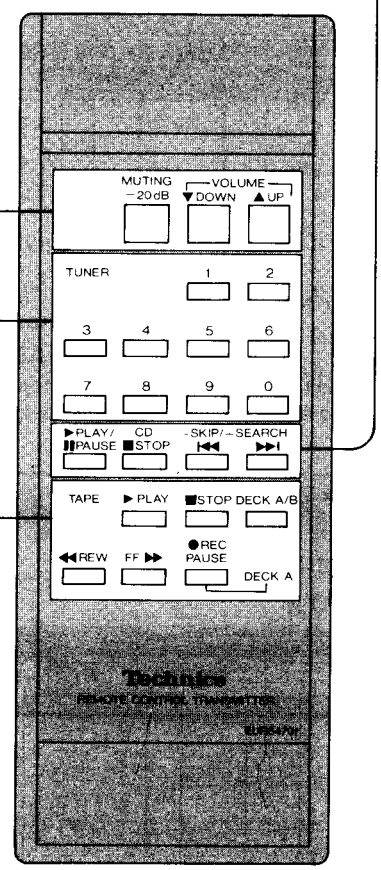
Press to rewind the tape.

"FF▶▶"

Press to advance the tape.

"● REC PAUSE": ("DECK A" only)

Press this button to record.
(When pressed during recording, the recording will stop temporarily.)



Compact disc player controls

(For Technics compact disc player with the remote-control terminals.)

"▶ PLAY/❚❚ PAUSE":

Press to start disc play.
(When pressed during disc play, the play will stop temporarily.)
Note:
If the compact disc player has separate "PLAY" and "PAUSE" buttons, the "PAUSE" function may not be operable.

"■ STOP":

Press to stop disc play.
(When pressed during programmed play, the programmed settings will be cancelled.)

"-SKIP/-SEARCH" (I◀◀/▶▶I):

Press to select the desired track.
I◀◀: for backward,
▶▶I: for forward
Keeping either "SKIP/SEARCH" button pressed during disc play activates search play.
Note:
If the compact disc player has separate "SKIP" and "SEARCH" buttons, the "SEARCH" function may not be operable.

(Refer to the operating instructions for the compact disc player.)

After listening is finished

Use the volume control to reduce the volume level so that the volume/balance level indicators illumination stops, and switch OFF the power.
Note:
The input selection, the volume level, the volume balance, the tone quality, and the muting settings will be kept as they were at the time when the power is switched OFF.

■ PROTECTION CIRCUITRY

The protection circuitry may have operated if either of the following condition is noticed:
- •No sound is heard when the power is turned on.
- •Sound stops during a performance.

The function of this circuitry is to prevent circuitry damage if, for example, the positive and negative speaker connection wires are "shorted", or if speaker systems with an impedance less than the indicated rated impedance of the amplifier are used.

If this occurs, follow the procedure outlined below.
1. Turn off the power.
2. Determine the cause of the problem and correct it.
3. Turn on the power once again.

Note:
When the protection circuitry functions, the unit will not operated unless the power is first turned off and then on again.

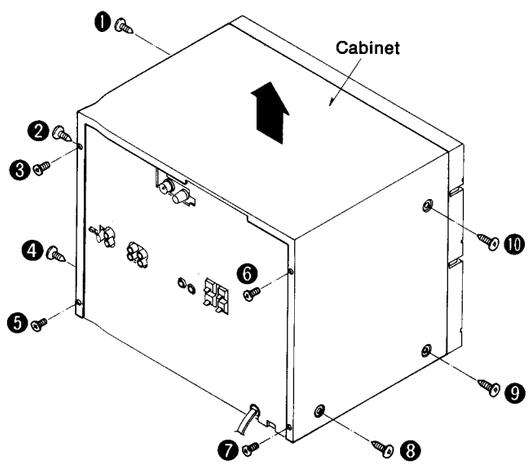
■ BEFORE REPAIR AND ADJUSTMENT

1. Turn off the power, Discharge both power supply capacitors (C701, C702 3300μF) through a 10Ω 5W resistor to ground. Do not short between C701 and C702. It may damage the capacitors.
2. After completion of repair, slowly apply the primary voltage by using a variac to avoid over current. Current consumption at 50Hz/60Hz in no signal mode should by shown with respect to supply voltage 220V.

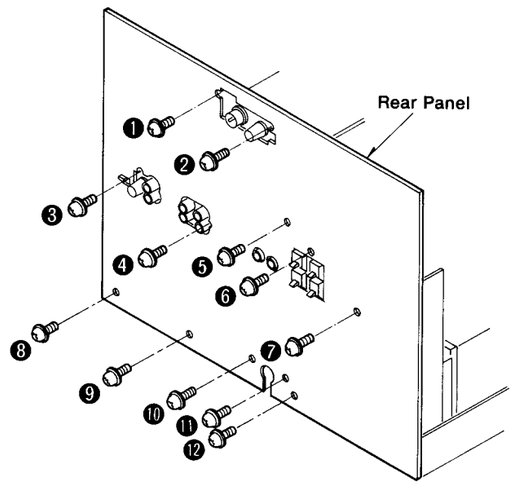
Power supply voltage		AC 220V
Consumed current	50/60Hz	70~170mA

■ DISASSEMBLY INSTRUCTIONS

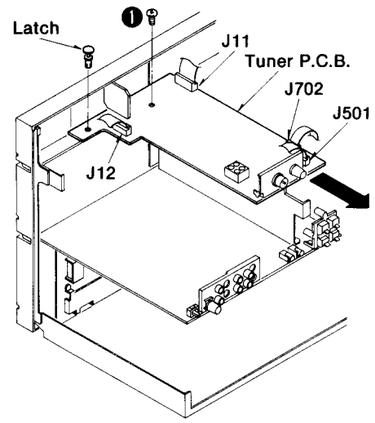
Ref. No. 1	How to remove the cabinet
Procedure 1	•Remove the 10 screws (❶~❿).



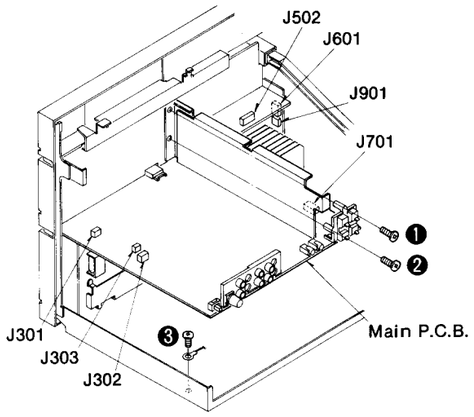
Ref. No. 2	How to remove the rear panel
Procedure 1→2	•Remove the 12 screws (❶~⓬).



Ref. No. 3	How to remove the tuner P.C.B.
Procedure 1→2→3	•Remove the 1 screws (❶). •Remove the 4 connectors (J11, J12, J501 and J702). •Remove the 1 latch.

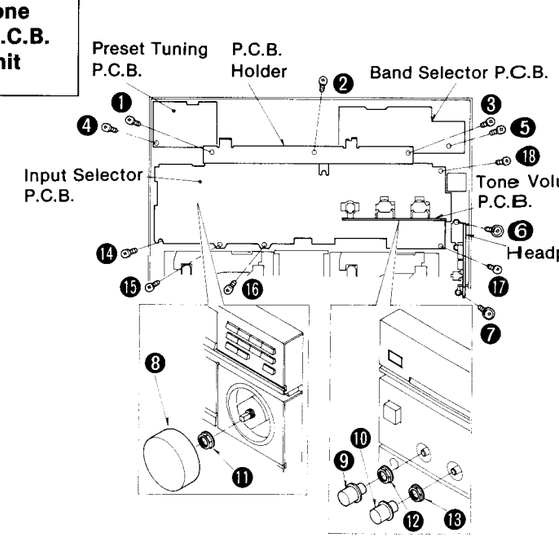


Ref. No. 4	How to remove the main P.C.B.
Procedure 1→2→4	•Remove the 3 screws (❶~❸). •Remove the 7 connectors (J301, J302, J303, J501, J601, J701 and J901).



Ref. No. 5	How to remove the preset tuning P.C.B., band selector P.C.B., headphones/dolby NR SW P.C.B., tone volume P.C.B., input selector P.C.B. and mechanism (DECK A, B) unit
Procedure 1→2→3 →4→5	

1. How to remove the preset tuning P.C.B. and band selector P.C.B.
   - •Remove the 3 screws (❶~❸), and then remove the P.C.B. holder.
   - •Remove the 2 screws (❹, ❺).
2. How to remove the headphones/dolby NR SW P.C.B.
   - •Remove the 2 screws (❻, ❼).
3. How to remove the tone VR P.C.B. and input selector P.C.B.
   - •Remove the 3 knobs (❽~❿) and 3 nuts (⓫~⓭) from surface side, and then tone volume P.C.B. can be removed.
   - •Remove the 5 screws (⓮~⓲), and then input selector P.C.B. can be removed.
4. How to remove the mechanism unit.
   - •Push the Eject button.
   - •Remove the counter belt.
   - •Remove the 8 screws (⓳~㉖).



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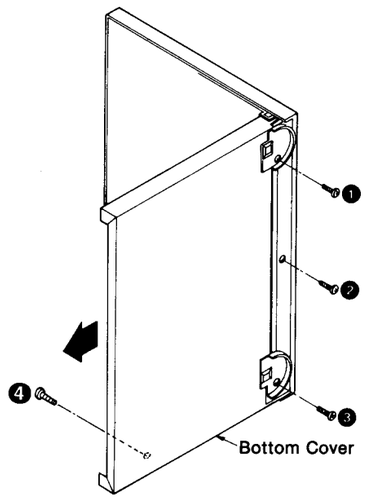
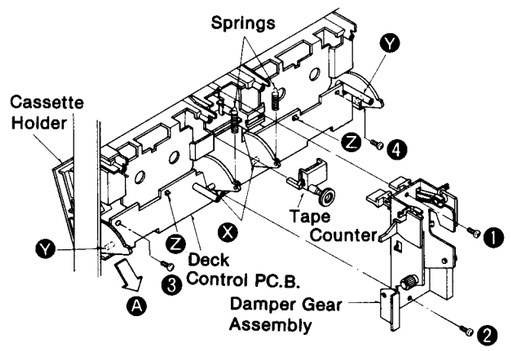
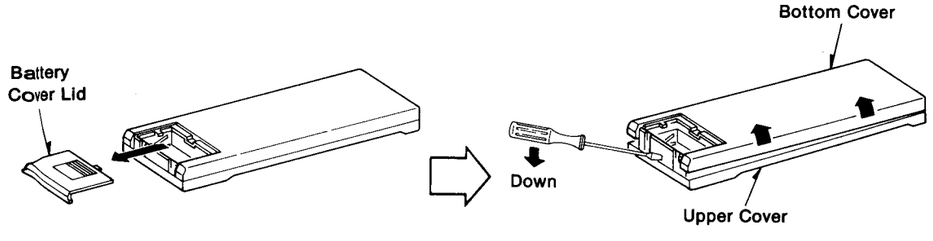
Ref. No. 6	How to remove the bottom cover
Procedure 1→2→6	•Remove the 4 screws (❶~❹). •Remove the 1 connector (J701) of main P.C.B. •Remove the 1 connector (J702) of Tuner P.C.B.



Ref. No. 7	How to remove the cassette holder and deck control P.C.B.
Procedure 1→2→3→ 4→5→7	•Remove the 2 springs. •Remove the 2 screws (❶, ❷). •Remove the 2 tabs (Ⓧ), and then remove the damper gear assembly. 1. How to remove the cassette holder •Remove the 2 tabs (Ⓨ), and then remove the cassette holder in the direction of allow (Ⓐ). 2. How to remove the deck control P.C.B. •Remove the 2 screws (❸, ❹). •Remove the 2 tabs (Ⓩ).



Ref. No. 8	How to remove the remote control
Procedure 8	•Remove the Battery cover lid. •Insert a screwdriver blade between the upper and lower covers inside the battery compartment and them slowly loosen the bottom cover.



■ MEASUREMENTS AND ADJUSTMENTS

• AM/FM

Control positions and equipment used

- AM and FM signal generator (AM and FM-SG)
- Stereo modulator
- Distortion analyser
- Oscilloscope
- AC and DC electronic voltmeter (EVM)
- Frequency counter
- Choke coil (100μH)
- Resistor (100kΩ)
- Ceramic capacitor (200pF)
- AM dummy antenna

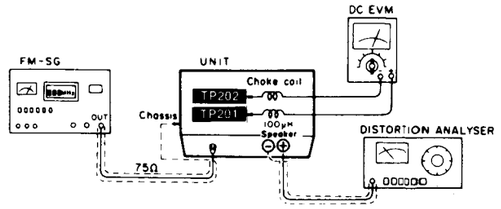
Note: For **Z202** (AM IFT) and **Z201** (AM ANT/AM OSC), adjusted parts are supplied. So, do not turn the cores of this parts.

FM MONO DISTORTION ADJUSTMENT

1. Test equipment connection is shown in the figure.
2. Set the unit to "**FM**" position.
3. Place the radio frequency display and signal generator setting to **100.10MHz**.
4. Adjust **T202** core so that voltage measured in signal mode is **0mV** (0±30mV) in 300mV range.
5. Adjust **T201** so that the distortion factor of Lch is minimized.
6. Repeat steps 4 and 5 a few times.
7. Make sure that the distortion factors of Lch and Rch are nearly the same with each other to minimum.

Note:
The adjusting screwdriver used should be made of resin.

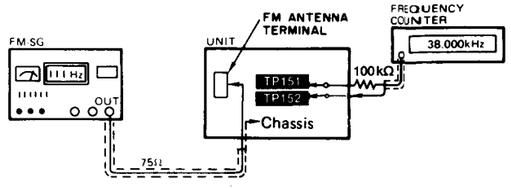
FM SIGNAL GENERATOR CONDITION
Modulation..... 100%
Modulation frequency..... 1kHz
Output level..... 66dB



MPX VCO ADJUSTMENT

1. Test equipment connection is shown in the figure.
2. Set the unit to "**FM auto**" position.
3. Place the radio frequency display and signal generator setting to **100.10MHz**.
4. Adjust **VR151** for **19kHz±0.05kHz** on frequency counter reading.

FM SIGNAL GENERATOR CONDITION
Modulation . . . . . 0% (non-modulation)
Output level 66dB



• CASSETTE

MEASUREMENT CONDITION:

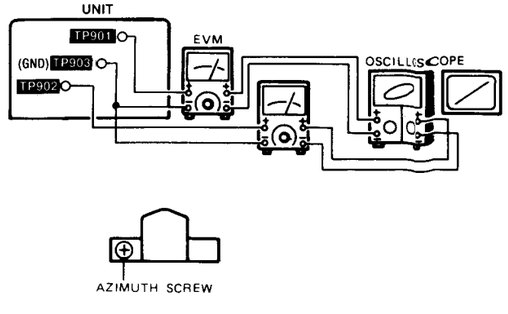
- Make sure heads are clean.
- Make sure capstan and pressure roller are clean.
- Make sure beat-proof switch is "**A**".
- DOLBY NR SW: "**OFF**".

TEST TAPE:

- Head azimuth adjustment (8kHz, −20dB): QZZCFM
- Tape speed adjustment (3kHz, −10dB): QZZCWAT
- Normal reference blank: QZZCRA
- CrO_2 reference blank: QZZCRX

HEAD AZIMUTH ADJUSTMENT (DECK A/B)

1. Test equipment connection is shown in the figure.
2. Playback the azimuth adjusted part (8kHz, −20dB) of the test tape (QZZCFM) and regulate the angle adjusting screw so that the outputs of L-CH and R-CH are maximized. (When the adjusting positions are different with L-CH and R-CH, find a position where are the outputs of L-CH and R-CH are balanced, and then mark the adjustment.)
3. At the same time, draw a lissajous waveform and eliminate phase deflection.
4. After the adjustment, apply screw-lock to the angle adjusting screw.



TAPE SPEED ADJUSTMENT (DECK A/B)

(DECK A)

1. Test equipment connection is shown in the figure.
2. Place unit in the "**TAPE**" position.
3. Playback the middle part of the test tape (QZZCWAT).
4. Adjust VR in the motor so that the output frequency is within the standard value.

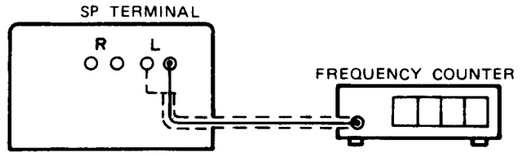
Standard value: 3000±20Hz

(DECK B)

5. Playback the middle part of the test tape (QZZCWAT).
6. Adjust VR in the motor so that the output frequency is within the standard value.

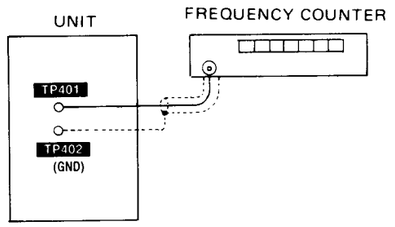
Standard value: 3000±45Hz

7. Confirm that the difference between DECK A and DECK B is within **±30Hz**.



BIAS OSCILLATION ADJUSTMENT (DECK A)

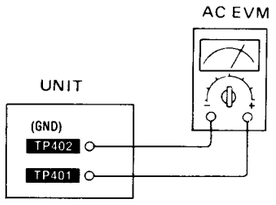
1. Test equipment connection is shown in the figure.
2. Place the unit in the "**TAPE**" position.
3. Place the cassette deck in the **REC** mode. (QZZCRA)
4. Adjust **L401** to read **95~103kHz** on the frequency counter.
5. Change the beat-proof switch to the "**B**" position.
6. Confirm that the frequency is **−2.5~−5.0kHz** lower than the frequency in the "**A**" position.
7. Change the beat-proof switch to the "**C**" position.
8. Confirm that the frequency is **−5~−10kHz** lower than the frequency in the "**A**" position.



ERASE CURRENT ADJUSTMENT (DECK A)

1. Test equipment connection is shown in the figure.
2. Place the unit in the "**TAPE**" position.
3. Place the cassette deck in the **REC** mode. (QZZCRA)
4. Adjust **VR403** to read **70±5mV** on the AC Electronic Voltmeter. (AC EVM)

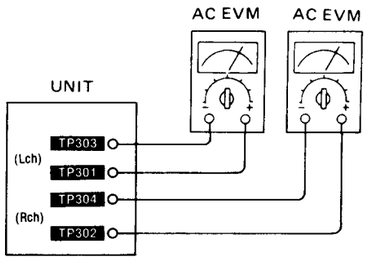
Standard value: Normal tape More than **70±5mV**
CrO_2 tape More than **80mV**



RECORDING BIAS ADJUSTMENT (DECK A)

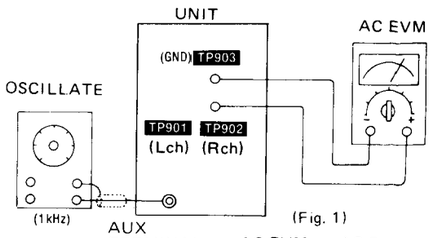
1. Test equipment connection is shown in the figure.
2. Place the unit in the "**TAPE**" position.
3. Place the cassette deck in the **REC** mode. (QZZCRA)
4. Adjust **VR401** (Lch) and **VR402** (Rch) to read **4.3±0.1mV** on the AC Electronic Voltmeter. (AC EVM)

Standard value: Normal tape **4.3±0.1mV**
CrO_2 tape **5.0~8.0mV**

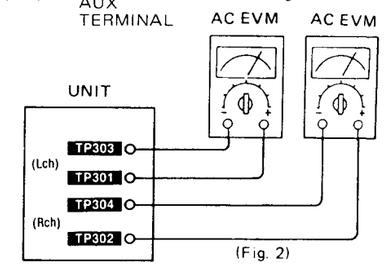


RECORDING CURRENT ADJUSTMENT (DECK A)

1. Test equipment connection is shown in the figure. (Fig. 1)
2. Place the unit in the "**AUX**" position and the cassette deck in the **STOP** mode.
3. Short "**ERASE HEAD**" and **TP903 (GND)**.
4. Place the cassette deck into **REC** mode.
5. Feed an AF Oscillator signal (1kHz) into the **AUX** terminal and adjust the input level to read **390±10mV** on the AC Electronic Voltmeter (AC EVM).
6. Test equipment connection is shown in the figure. (Fig. 2)
7. Place the cassette deck into the **REC** mode. (QZZCRA)
8. Adjust **VR305** (Lch) and **VR306** (Rch) to read **0.38±0.01mV** on the AC Electronic Voltmeter. (AC EVM)
9. Insert the CrO_2 tape. (QZZCRX)
10. Confirm that the reading increases **2~5dB** when compared with normal tape.



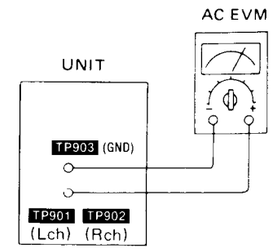
(Fig. 1)



(Fig. 2)

PLAYBACK GAIN ADJUSTMENT (DECK A/B)

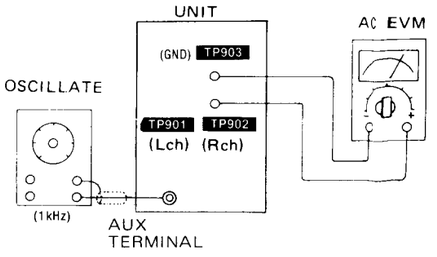
1. Test equipment connection is shown in the figure.
2. Playback test tape. **QZZCFM** (315Hz)
3. Adjust **VR301, 302** (DECK B) and **VR303, 304** (DECK A) to read **390±10mV** on the AC Electronic Voltmeter. (AC EVM)



ALC CONFIRMATION (DECK A/B)

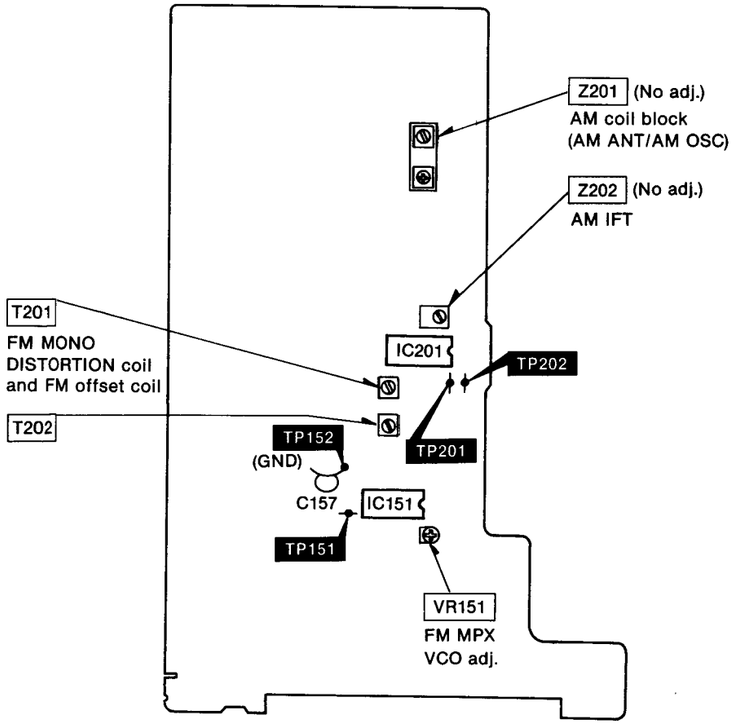
1. Test equipment connection is shown in the figure.
2. Place the unit in the "**AUX**" position.
3. Place the cassette deck in the **REC** mode.
4. Feed an AF Oscillator signal (1kHz) into the **AUX** terminal and adjust the input level to read **390±10mV** on the AC Electronic Voltmeter. (AC EVM)
5. Feed an input level of more than **+10dB** into the **AUX** terminal.
6. Confirm that the output on the AC EVM is within the standard value.

Standard value: 770~1170mV

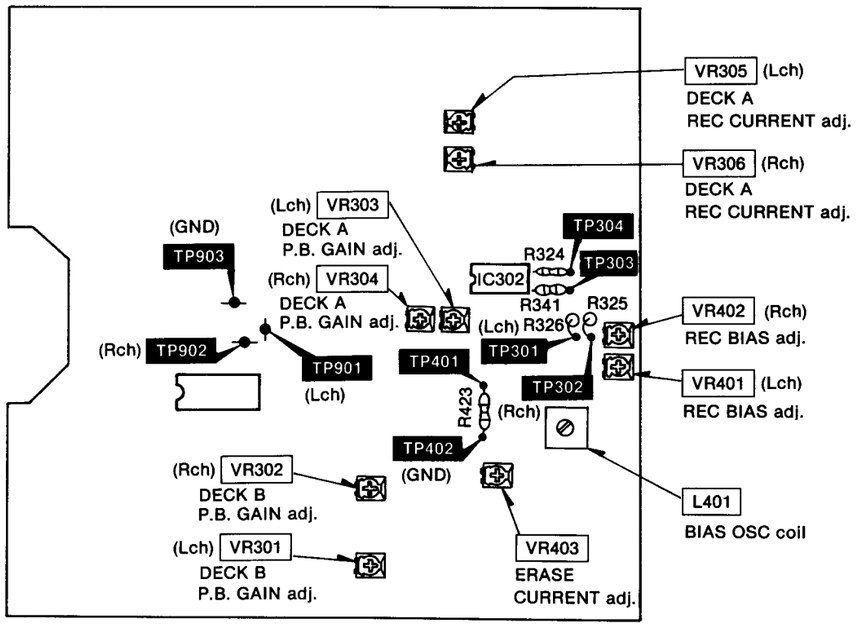


• Adjustment Points

• Tuner P.C.B.



• Main P.C.B.



■ FUNCTION OF TERMINAL

• IC11 (LC6512A3377): PLL Controller

PIN NO.	IN/OUT	MARK	DESCRIPTION OF TERMINAL
1	I	PB3	Computer drive terminal.
2	O	DATA	Serial data output terminal.
3	O	CL	Clock signal terminal for serial data.
4	O	CE	Chip enable terminal.
5	—	PC3	Not used in this unit.
6	—	NC	Not used in this unit.
7	O	PD0	Auto/mono changeover terminal. (auto → 0V, mono → 5V)
8	—	PD1	Not used in this unit.
9		PD2	
10		PD3	
11		PE0	
12 ⟆ 14 • 22 ⟆ 25	O	PE1 ⟆ PE3 • PF0 ⟆ PF3	Digital signal terminal for display. Terminal for key return signal to external key matrix.
15	I	$\overline{RES}$	Reset terminal.
16	—	TEST	Ground terminal.
17		V_{SS}	
18	—	NC	Not used in this unit.
19			
20	I	OSC1	Connecting terminal for crystal oscillator.
21	O	OSC2	
26 ⟆ 29 • 31 ⟆ 34	O	PG0 ⟆ PG3 • PH0 ⟆ PH3	Segment signal terminal for display.
30	—	NC	Not used in this unit.
35	O	P10	Not used in this unit.
36	O	P11	Muting signal terminal. (Muting → High level)
37	I	$\overline{HOLD}$	Terminal for power failure detection.
38	I	$\overline{INT}$	Terminal for remote control cord.
39	I	V_{DD}	Power supply terminal of device. Voltage of 5V is supplied during operation of device.
40	I	PA0 ⟆ PA3	Terminal for key return signal to external key matrix.
41			
44			
45			
42 • 43	—	NC	Not used in this unit.
46	I	PB0 ⟆ PB2	Stereo signal terminal.
47			SD signal terminal.
48			Tuner select terminal. (Ground connection)

[KEY MATRIX]

Pin No.	45	44	41	40
14	CH4	CH3	CH2	CH1
22	CH8	CH7	CH6	CH5
23	—	—	CH0	CH9
24	—	—	AM	FM
25	MODE	MEMORY	UP	DOWN

• IC801 (LC6554H-3635): Microcomputer (for Amplifier/Tape Deck)

PIN NO.	IN/OUT	MARK	DESCRIPTION OF TERMINAL
1 ∫ 4	O	DECK A0 ∫ DECK A3	DECK A control output terminal.
5 ∫ 8	O	S0 ∫ S3	Key Matrix output terminal.
10 ∫ 12	I	K0 ∫ K2	Key Matrix input terminal.
9	—	NC	Not used in this unit.
13	—	K3	Ground terminal.
14	I	VRϕ	Rotary encoder terminal for volume control (VR801).
15		VR1	
16	I	$\overline{AMP}$	Power supply detection terminal. • Power switch ON: "H", Power switch OFF: "L"
17	I	$\overline{HALT}$	HALT mode detection terminal. • HALT mode ON: "H", HALT mode OFF: "L"
18	I	$\overline{REC}$	Deck rec mode control terminal. • REC mode: "L"
19	I	$\overline{CDED}$	CD editing mode control terminal. • CD editing mode: "L"
20	—	NC	Not used in this unit.
21	—	$\overline{CD\ PWR}$	Ground terminal.
22 ∫ 24	—	NC	Not used in this unit.
25	O	$\overline{AUX}$	LED indication (AUX) terminal. • Light up: "L"
26	O	$\overline{TA}$	LED indication (TAPE) terminal. • Light up: "L"
27	O	$\overline{CD}$	LED indication (CD) terminal. • Light up: "L"
28	O	$\overline{TUN}$	LED indication (TUNER) terminal. • Light up: "L"
29	O	$\overline{PH}$	LED indication (PHONO) terminal. • Light up: "L"
30	—	TEST	Ground terminal.
31	—	V_{SS}	
32	I	OSC1	Connecting terminal for crystal oscillator. The crystal connected is 3.0 MHz.
33	O	OSC2	
34	I	$\overline{RES}$	Microcomputer reset pulse input terminal.
35	I	STB	Serial data input terminal. — Serial data transmission operation.
36	O	DATA	Serial data output terminal.
37	I/O	CLK	Clock signal I/O terminal.

Output \ Input	10	11	12
5	AUX	TAPE	TUNER
6	CD	PHOTO	—
7	—	BALANCE LEFT	—
8	—	BALANCE RIGHT	MUTE

PIN NO.	IN/OUT	MARK	DESCRIPTION OF TERMINAL
38	O	VL MUTE	Muting control terminal.
39	I	RMT	Remote control data input terminal.
40 • 41	—	NC	Not used in this unit.
42	I	$\overline{SY\ CD}$	Synchro rec terminal.
43 ∫ 50	—	NC	Not used in this unit.
51	—	VP	Ground terminal.
52	O	$\overline{MUTE}$	LED indication (MUTING) terminal.
53 ∫ 59	O	L6 ∫ L0	LED terminal for volume control and balance control.
60 ∫ 62	O	DECK B0 ∫ DECK B2	Deck B control output terminal.
63	O	A/B	Deck A/B LED indication (REMOTE) terminal. • Deck A: "L", Deck B: "H"
64	I	V_{DD}	Power supply terminal.

• IC803 (TC9312N073): Mechanism Control (Deck A)

PIN NO.	IN/OUT	MARK	DESCRIPTION OF TERMINAL
1	—	GND	Ground terminal.
2	I	OSC	Connecting terminal for oscillator.
3	I	CL	Auto clear command signal input terminal.
4	I	IN1 (MODE)	Deck A mechanism mode detection terminal.
5	I	IN2 (REC)	Keying switch reading terminal. Input of Deck A REC (●) switch.
6	I	IN3	Deck A rec inhibit detection terminal.
7	—	NC	Not used in this unit.
8	I	IN5	Keying switch reading terminal. Input of Deck A PLAY (▶), STOP (■) and FF (▶▶) switch.
9	I	IN6	Keying switch reading terminal. Input of Deck A STOP (■) and REW (◀◀) switch.
10	I	IN7	Keying switch reading terminal. Input of Deck A FF (▶▶) and REW (◀◀) switch.
11	I	IN8	Deck A/B playback mode selector detection terminal.
12	I	IN9	Deck A/B timer mode selector detection terminal.
13	I	IN10	Deck A Hall IC signal detection terminal.
14	—	I/O 1	Ground terminal.
15	I	I/O 2 (HALF)	Deck A mechanism half detection terminal.
16	I	I/O 3	Editing start control terminal. • Start: "H"

PIN NO.	IN/OUT	MARK	DESCRIPTION OF TERMINAL
17	I	I/O 4	Deck A/B succession playback control terminal. • Deck B → Deck A: "H"
18	—	NC	Not used in this unit.
19	O	OUT9 (DMT)	Deck A muting control terminal. • Muting mode: "H"
20	O	OUT8	Deck A/B succession playback control terminal. • Deck A → Deck B: "H"
21	—	NC	Not used in this unit.
22	—	OUT6	Ground terminal.
23	O	OUT5	Editing control terminal. • Editing control: "H"
24	O	OUT4	Deck A LED [STOP (■)] drive terminal. • Light up: "H"
25	—	NC	Not used in this unit.
26	O	OUT2	Deck A plunger control terminal.
27	O	OUT1 (AMO)	Deck A motor drive terminal.
28	I	V_{DD}	Power supply terminal.

• IC804 (TC9312N072): Mechanism Control (Deck B)

PIN NO.	IN/OUT	MARK	DESCRIPTION OF TERMINAL
1	—	GND	Ground terminal.
2	I	OSC	Connecting terminal for oscillator.
3	I	CL	Auto clear command signal input terminal.
4	I	IN1 (MODE)	Deck B mechanism mode detection terminal.
5	I	IN2 (HALF)	Deck B mechanism half detection terminal.
6	I	IN3	Key switch reading terminal. Input of Deck B PLAY (▶) and STOP (■) switch.
7	I	IN4	Key switch reading terminal. Input of Deck B STOP (■) and REW (◀◀) switch.
8	I	IN5	Key switch reading terminal. Input of Deck B FF (▶▶) and REW (◀◀) switch.
9	I	IN6 (DUB)	Deck B editing mode detection terminal.
10	I	IN7	Deck B REW AUTO EDIT mode detection terminal.
11	I	IN8	Deck A/B playback mode selector detection terminal.
12	—	IN9	Ground terminal.
13	I	IN10	Deck B Hall IC signal detection terminal.
14	—	NC	Not used in this unit.
15	I	I/O 2	Editing control terminal. • Editing standby: "H"

PIN NO.	IN/OUT	MARK	DESCRIPTION OF TERMINAL
16	I	I/O 3	Deck A/B succession playback control terminal. • Deck A → Deck B: "H"
17	—	NC	Not used in this unit.
18	O	OUT10	Deck A/B succession playback control terminal. • Deck B → Deck A: "H"
19	O	OUT9	Deck B LED [STOP (■)] drive terminal. • Light up: "H"
20	O	OUT8	Editing start control terminal. • Start: "H"
21	—	NC	Not used in this unit.
22			
23	O	OUT5 (DUB)	Deck B LED (EDIT) drive terminal.
24	O	OUT4 (DMT)	Deck B muting control terminal. • Muting: "H"
25	—	NC	Not used in this unit.
26	O	OUT2	Deck B plunger control terminal.
27	O	OUT1 (BMO)	Deck B motor drive terminal.
28	I	V_{DD}	Power supply terminal.

■ RESISTORS & CAPACITORS

Notes : * Important safety notice :
Components identified by ⚠ mark have special characteristics important for safety. When replacing any of these components use only manufacturer's specified parts.
* Bracketed indications in Ref. No. columns specify the area. (Refer to the first page for area.)
Parts without these indications can be used for all areas.

Numbering System For Resistors

Example:

ERD	25	F	J	102
Type	Wattage (1/4W)	Shape	Tolerance	Value (1KΩ)
ERX	2	AN	J	471
Type	Wattage (2W)	Shape	Tolerance	Value (470Ω)

Numbering System For Capacitors

Example:

ECKD	1H	102	Z	F
Type	Voltage (50V)	Value (0.001μF)	Tolerance	Unique
ECEA	50	M	330	
Type	Voltage (50V)	Characteristics	Value (33μF)	

● Capacitance values is in microfarads (μF) unless specified otherwise, P = Pico-farads (pF) F = Farads (F).
● Resistance values is in ohms (Ω), unless specified otherwise, 1K = 1,000Ω, 1M = 1,000kΩ

Resistor Type	Wattage		Tolerance
ERD : Carbon	10 : 1/8W	12 : 1/2W	J : ±5%
ERG : Metal Oxide	14 : 1/4W	25 : 1/4W	F : ±1%
ERQ : Fuse Type Metal	1A : 1W	18 : 1/8W	G : ±2%
ERX : Metal Film	S2 : 1/4W	S1 : 1/2W	J : ±5%
ERD L : Carbon (chip)	2F : 1/4W	50 : 1/2W	K : ±10%
ERO K : Metal Film (chip)	2A : 2W	3A : 3W	M : ±20%
ERC : Solid	6G : 1/10W	8G : 1/8W	
ERF : Incombustible Box-Shaped			
ERM : Wiré-Wound			
RRJ : Chip Resistor			
ERJ : Chip Resistor			

Capacitor Type	Voltage		Tolerance
ECE : Electrolytic	0J : 6.3V	1A : 10V	K : ±10%
ECCD : Ceramic	1C : 16V	1E : 25V	M : ±20%
ECKD : Ceramic Capacitor	1H : 50V	1V : 35V	Z : +80 −20 %
ECQM : Polyester	50 : 50V	05 : 50V	
ECQP : Polypropylene	2H : 500V	2A : 100V	J : ±5%
ECG : Ceramic	1 : 100V	1J : 63V	G : ±2%
ECEA N : Non Polar Electrolytic	KC : 400V AC		F : ±1%
QCU : Ceramic (Chip Type)	KC : 125V AC (UL)		C : ±0.25pF
ECUX : Ceramic (Chip Type)			D : ±0.5pF
ECF : Semiconductor			
EECW : Liquid electrolyte double layer capacitor			

Ref. No.	Part No.	Value.
RESISTORS(VALUE,WATTAGE)		
R15	ERDS2TJ821	820 1/4
R16	ERDS2TJ272	2.7K 1/4
R17	ERDS2TJ103	10K 1/4
R18	ERDS2TJ224	220K 1/4
R19	ERDS2TJ101	100 1/4
R20	ERDS2TJ101	100 1/4
R22	ERDS2TJ821	820 1/4
R23	ERDS2TJ104	100K 1/4
R24	ERDS2TJ104	100K 1/4
R30	ERDS2TJ104	100K 1/4
R31	ERDS2TJ104	100K 1/4
R32	ERDS2TJ104	100K 1/4
R33	ERDS2TJ104	100K 1/4
R40	ERDS2TJ473	47K 1/4
R41	ERDS2TJ473	47K 1/4
R42	ERDS2TJ103	10K 1/4
R46	ERDS2TJ101	100 1/4
R50	ERDS2TJ683	68K 1/4
R51	ERDS2TJ683	68K 1/4
R52	ERDS2TJ683	68K 1/4
R53	ERDS2TJ683	68K 1/4
R54	ERDS2TJ683	68K 1/4
R60	ERDS2TJ103	10K 1/4
R61	ERDS2TJ273	27K 1/4
R71	ERDS2TJ102	1K 1/4
R72	ERDS2TJ221	220 1/4
R73	ERDS2TJ271	270 1/4
R75	ERDS2TJ221	220 1/4
R101	ERDS2TJ103	10K 1/4
R104	ERDS2TJ102	1K 1/4
R105	ERDS2TJ561	560 1/4
R107	ERDS2TJ103	10K 1/4
R108	ERDS2TJ391	390 1/4
R151	ERDS2TJ393	39K 1/4
R152	ERD25FJ151	150 1/4
R153	ERDS2TJ223	22K 1/4
R154	ERDS2TJ223	22K 1/4
R155	ERDS2TJ272	2.7K 1/4
R156	ERDS2TJ272	2.7K 1/4
R157	ERDS2TJ562	5.6K 1/4
R158	ERDS2TJ562	5.6K 1/4
R159	ERDS2TJ823	82K 1/4
R160	ERD2FCG100	10 1/4
R161	ERDS2TJ102	1K 1/4
R162	ERDS2TJ153	15K 1/4
R163	ERDS2TJ473	47K 1/4
R164	ERDS2TJ473	47K 1/4
R165	ERDS2TJ103	10K 1/4
R166	ERDS2TJ102	1K 1/4
R167	ERDS2TJ473	47K 1/4
R168	ERDS2TJ222	2.2K 1/4
R169	ERDS2TJ102	1K 1/4
R170	ERDS2TJ102	1K 1/4
R173	ERDS2TJ153	15K 1/4
R174	ERDS2TJ153	15K 1/4
R177	ERDS2TJ183	18K 1/4
R201	ERDS2TJ332	3.3K 1/4
R203	ERDS2TJ122	1.2K 1/4
R204	ERDS2TJ824	820K 1/4
R205	ERDS2TJ391	390 1/4
R206	ERDS2TJ561	560 1/4
R207	ERDS2TJ822	8.2K 1/4
R208	ERDS2TJ102	1K 1/4
R209	ERDS2TJ471	470 1/4
R211	ERDS2TJ222	2.2K 1/4
R212	ERDS2TJ153	15K 1/4
R214	ERDS2TJ824	820K 1/4
R215	ERDS2TJ822	8.2K 1/4
R216	ERDS2TJ563	56K 1/4
R217	ERDS2TJ223	22K 1/4
R218	ERDS2TJ563	56K 1/4
R219	ERDS2TJ223	22K 1/4
R220	ERDS2TJ103	10K 1/4
R221	ERDS2TJ104	100K 1/4
R222	ERDS2TJ473	47K 1/4
R225	ERDS2TJ103	10K 1/4
R227	ERDS2TJ104	100K 1/4
R229	ERDS2TJ103	10K 1/4
R230	ERDS2TJ104	100K 1/4
R231	ERDS2TJ102	1K 1/4
R232	ERDS2TJ122	1.2K 1/4
R233	ERDS2TJ684	680K 1/4
R234	ERDS2TJ103	10K 1/4
R235	ERDS2TJ471	470 1/4
R240	ERDS2TJ122	1.2K 1/4
R247	ERDS2TJ103	10K 1/4
R259	ERDS2TJ102	1K 1/4
R301	ERDS2TJ101	100 1/4
R302	ERDS2TJ101	100 1/4
R307	ERDS2TJ224	220K 1/4
R308	ERDS2TJ224	220K 1/4
R309	ERDS2TJ394	390K 1/4
R310	ERDS2TJ394	390K 1/4
R311	ERDS2TJ121	120 1/4
R312	ERDS2TJ121	120 1/4
R315	ERDS2TJ163T	16K 1/4
R316	ERDS2TJ163T	16K 1/4
R317	ERDS2TJ332	3.3K 1/4
R318	ERDS2TJ332	3.3K 1/4
R323	ERDS2TJ472	4.7K 1/4
R324	ERDS2TJ472	4.7K 1/4
R325	ERDS2TJ224	220K 1/4
R326	ERDS2TJ224	220K 1/4
R327	ERDS2TJ102	1K 1/4
R328	ERDS2TJ102	1K 1/4
R329	ERDS2TJ392	3.9K 1/4
R330	ERDS2TJ392	3.9K 1/4
R331	ERDS2TJ472	4.7K 1/4
R332	ERDS2TJ472	4.7K 1/4
R333	ERD25FJ100	10 1/4
R334	ERD25FJ100	10 1/4
R335	ERDS2TJ472	4.7K 1/4
R336	ERDS2TJ472	4.7K 1/4
R337	ERDS2TJ472	4.7K 1/4
R338	ERDS2TJ472	4.7K 1/4
R339	ERDS2TJ561	560 1/4
R341	ERD25TJ101S	100 1/4
R342	ERD25TJ101S	100 1/4
R343	ERDS2TJ224	220K 1/4
R344	ERDS2TJ224	220K 1/4
R345	ERDS2TJ394	390K 1/4
R346	ERDS2TJ394	390K 1/4
R347	ERDS2TJ163T	16K 1/4
R348	ERDS2TJ163T	16K 1/4

Ref. No.	Part No.	Value.
R467	ERD25FJ221	220 1/4
R468	ERDS2TJ102	1K 1/4
R501	ERDS2TJ222	2.2K 1/4
R502	ERDS2TJ222	2.2K 1/4
R503	ERDS2TJ332	3.3K 1/4
R504	ERDS2TJ332	3.3K 1/4
R505	ERDS2TJ102	1K 1/4
R506	ERDS2TJ102	1K 1/4
R507	ERDS2TJ223	22K 1/4
R508	ERDS2TJ223	22K 1/4
R509	ERDS2TJ391	390 1/4
R510	ERDS2TJ391	390 1/4
R511	ERDS2TJ224	220K 1/4
R512	ERDS2TJ224	220K 1/4
R513	ERDS2TJ563	56K 1/4
R514	ERDS2TJ563	56K 1/4
R515	ERDS2TJ680	68 1/4
R516	ERDS2TJ680	68 1/4
R517	ERDS2TJ271	270 1/4
R518	ERDS2TJ271	270 1/4
R519	ERDS2TJ184	180K 1/4
R520	ERDS2TJ184	180K 1/4
R521	ERDS2TJ123	12K 1/4
R522	ERDS2TJ123	12K 1/4
R523	ERDS2TJ563	56K 1/4
R524	ERDS2TJ563	56K 1/4
R525	ERDS2TJ221	220 1/4
R526	ERDS2TJ221	220 1/4
R527	ERDS2TJ102	1K 1/4
R528	ERDS2TJ102	1K 1/4
R529	ERDS2TJ224	220K 1/4
R530	ERDS2TJ224	220K 1/4
R531	ERDS2TJ272	2.7K 1/4
R532	ERDS2TJ272	2.7K 1/4
R533	ERDS2TJ102	1K 1/4
R534	ERDS2TJ102	1K 1/4
R535	ERDS2TJ473	47K 1/4
R536	ERDS2TJ473	47K 1/4
R537	ERDS2TJ473	47K 1/4
R538	ERDS2TJ103	10K 1/4
R539	ERDS2TJ103	10K 1/4
R540	ERDS2TJ103	10K 1/4
R543	ERDS2TJ222	2.2K 1/4
R544	ERDS2TJ561	560 1/4
R545	ERDS2TJ472	4.7K 1/4
R546	ERDS2TJ104	100K 1/4
R547	ERDS2TJ103	10K 1/4
R549	ERDS2TJ104	100K 1/4
R550	ERDS2TJ104	100K 1/4
R551	ERDS2TJ224	220K 1/4
R552	ERDS2TJ224	220K 1/4
R553	ERDS2TJ823	82K 1/4
R554	ERDS2TJ823	82K 1/4
R555	ERDS2TJ224	220K 1/4
R556	ERDS2TJ224	220K 1/4
R557	ERDS2TJ272	2.7K 1/4
R558	ERDS2TJ272	2.7K 1/4
R559	ERDS2TJ154	150K 1/4
R560	ERDS2TJ154	150K 1/4
R561	ERDS2TJ102	1K 1/4
R562	ERDS2TJ102	1K 1/4
R563	ERDS2TJ682	6.8K 1/4
R564	ERDS2TJ682	6.8K 1/4
R565	ERDS2TJ223	22K 1/4
R566	ERDS2TJ223	22K 1/4
R567	ERDS2TJ392	3.9K 1/4
R568	ERDS2TJ392	3.9K 1/4
R569	ERDS2TJ223	22K 1/4
R570	ERDS2TJ223	22K 1/4
R571	ERDS2TJ222	2.2K 1/4
R572	ERDS2TJ222	2.2K 1/4
R573	ERDS2TJ102	1K 1/4
R574	ERDS2TJ102	1K 1/4
R575	ERDS2TJ472	4.7K 1/4
R576	ERDS2TJ472	4.7K 1/4
R577	ERDS2TJ471	470 1/4
R578	ERDS2TJ471	470 1/4
R579	ERDS2TJ473	47K 1/4
R581	ERDS2TJ563	56K 1/4
R582	ERDS2TJ563	56K 1/4
R585	ERDS2TJ563	56K 1/4
R586	ERDS2TJ563	56K 1/4
R587	ERDS2TJ392	3.9K 1/4
R588	ERDS2TJ392	3.9K 1/4
R589	ERDS2TJ224	220K 1/4
R590	ERDS2TJ224	220K 1/4
R591	ERDS2TJ472	4.7K 1/4
R592	ERDS2TJ472	4.7K 1/4
R599	ERDS2TJ103	10K 1/4
R601	ERDS2TJ102	1K 1/4
R602	ERDS2TJ102	1K 1/4
R603	ERDS2TJ393	39K 1/4
R604	ERDS2TJ393	39K 1/4
R605	ERDS2TJ393	39K 1/4
R606	ERDS2TJ393	39K 1/4
R607	ERDS2TJ272	2.7K 1/4
R608	ERDS2TJ272	2.7K 1/4
R609	ERDS2TJ154	150K 1/4
⚠ R610	ERDS1FJ331	330 1/2
R611	ERDS2TJ154	150K 1/4
R612	ERDS2TJ103	10K 1/4
⚠ R613	ERDS1FJ100	10 1/2
⚠ R614	ERDS1FJ100	10 1/2
R615	ERDS2TJ151	150 1/4
R616	ERDS2TJ151	150 1/4
R617	ERDS2TJ151	150 1/4
R618	ERDS2TJ151	150 1/4
⚠ R619	ERDS1FJ100	10 1/2
⚠ R620	ERDS1FJ100	10 1/2
R702	ERDS2TJ153	15K 1/4
R703	ERDS2TJ182	1.8K 1/4
R704	ERDS2TJ153	15K 1/4
R705	ERDS2TJ562	5.6K 1/4
⚠ R706	ERD2FCG820	82 1/4
R707	ERDS2TJ103	10K 1/4
R708	ERDS2TJ563	56K 1/4
R709	ERDS2TJ154	150K 1/4
⚠ R710	ERX12ANJR22P	0.22 1/2
⚠ R712	ERD2FCG100	10 1/4
R801	ERDS2TJ102	1K 1/4
R802	ERDS2TJ102	1K 1/4
R803	ERDS2TJ102	1K 1/4
R804	ERDS2TJ102	1K 1/4
R805	ERDS2TJ102	1K 1/4
R806	ERDS2TJ103	10K 1/4
R807	ERDS2TJ103	10K 1/4
R808	ERDS2TJ103	10K 1/4
R809	ERDS2TJ472	4.7K 1/4
R810	ERDS2TJ103	10K 1/4
R811	ERDS2TJ563	56K 1/4
R812	ERDS2TJ154	150K 1/4
R813	ERDS2TJ102	1K 1/4
R814	ERDS2TJ153	15K 1/4
R815	ERDS2TJ153	15K 1/4
R816	ERDS2TJ561	560 1/4
R817	ERDS2TJ103	10K 1/4
R818	ERDS2TJ472	4.7K 1/4
R819	ERDS2TJ472	4.7K 1/4
R820	ERDS2TJ472	4.7K 1/4
R821	ERDS2TJ472	4.7K 1/4
R822	ERDS2TJ472	4.7K 1/4
R823	ERDS2TJ104	100K 1/4
R824	ERDS2TJ104	100K 1/4
R826	ERDS2TJ223	22K 1/4
R827	ERDS2TJ102	1K 1/4
R828	ERDS2TJ333	33K 1/4
R829	ERDS2TJ103	10K 1/4
R830	ERDS2TJ102	1K 1/4
R831	ERDS2TJ103	10K 1/4
R832	ERDS2TJ333	33K 1/4
R834	ERDS2TJ472	4.7K 1/4
R835	ERDS2TJ472	4.7K 1/4
R841	ERDS2TJ181	180 1/4
R842	ERDS2TJ271	270 1/4
⚠ R459	ERD2FCG100	10 1/4
R460	ERDS2TJ222	2.2K 1/4
R465	ERDS2TJ221	220 1/4

Ref. No.	Part No.	Value.
R844	ERDS2TJ271	270 1/4
R845	ERDS2TJ181	180 1/4
R846	ERDS2TJ222	2.2K 1/4
R847	ERDS2TJ222	2.2K 1/4
R848	ERDS2TJ103	10K 1/4
R849	ERDS2TJ181	180 1/4
R850	ERDS2TJ181	180 1/4
R851	ERDS2TJ471	470 1/4
R852	ERDS2TJ471	470 1/4
R853	ERDS2TJ472	4.7K 1/4
R854	ERDS2TJ472	4.7K 1/4
R868	ERDS2TJ103	10K 1/4
R869	ERDS2TJ332	3.3K 1/4
R870	ERDS2TJ272	2.7K 1/4
R901	ERDS2TJ562	5.6K 1/4
R902	ERDS2TJ562	5.6K 1/4
R903	ERDS2TJ103	10K 1/4
R904	ERDS2TJ333	33K 1/4
R905	ERDS2TJ221	220 1/4
R906	ERDS2TJ103	10K 1/4
R907	ERDS2TJ103	10K 1/4
R908	ERDS2TJ332	3.3K 1/4
R909	ERDS2TJ473	47K 1/4
R910	ERDS2TJ102	1K 1/4
R911	ERDS2TJ103	10K 1/4
R912	ERDS2TJ223	22K 1/4
R913	ERDS2TJ272	2.7K 1/4
R914	ERDS2TJ272	2.7K 1/4
R915	ERDS2TJ472	4.7K 1/4
R916	ERDS2TJ472	4.7K 1/4
R917	ERDS2TJ123	12K 1/4
R918	ERDS2TJ123	12K 1/4
CAPACITORS(VALUE,VOLTAGE)		
C12	ECEA0JS102	1000 6.3
C13	ECKR1H103ZF5	0.01 50
C14	ECEA0JS102	1000 6.3
C15	ECEA1HKR22	0.22 50
C16	ECKD1H101KB	100P 50
C17	ECKR1H121KB5	120P 50
C18	RCBS1H181KBY	180P 50
C22	ECKR1H103ZF5	0.01 50
C25	ECEA1VK100B	10 35
C26	ECEA1VK3R3	3.3 35
C71	ECKR1H103ZF5	0.01 50
C72	ECEA1CKS100	10 16
C101	RCBS1H150JCY	15P 50
C102	RCBS1H150JCY	15P 50
C103	ECBT1H102KB5	0.001 50
C104	RCBS1H181KBY	180P 50
C105	ECEA0JK101	100 6.3
C106	ECKR1H103ZF5	0.01 50
C107	ECKR1H103ZF5	0.01 50
C108	ECEA25M4R7R	4.7 25
C109	ECEA1CK330	33 16
C110	ECBT1H102KB5	0.001 50
C111	ECKR1H103ZF5	0.01 50
C151	ECEA1CK101	100 16
C152	ECEA1HKR47	0.47 50
C153	ECEA1HK010	1 50
C154	ECEA1VK3R3	3.3 35
C155	ECEA1VK3R3	3.3 35
C156	ECEA1VK3R3	3.3 35
C157	ECFTD392KXL	0.0039 25
C158	ECFTD392KXL	0.0039 25
C159	ECKR1H103ZF5	0.01 50
C160	ECFTD473KXL	0.047 25
C161	ECQP1471JZ	470P 125
C162	ECEA1CKS100	10 16
C163	ECBT1H102KB5	0.001 50
C164	ECBT1H102KB5	0.001 50
C165	ECFTD332KXL	0.0033 25
C166	ECFTD332KXL	0.0033 25
C175	ECCD1H330KC	33P 50
C176	ECKR1H103ZF5	0.01 50
C177	ECBT1H102KB5	0.001 50
C201	ECKR1H103ZF5	0.01 50

Ref. No.	Part No.	Value.
C202	ECKR1H103ZF5	0.01 50
C204	RCBS1H181KBY	180P 50
C205	ECKD1H223PF	0.022 50
C206	RCBS1H150JCY	15P 50
C208	ECEA0JK101	100 6.3
C209	ECEA1EK4R7	4.7 25
C210	ECKD1H223PF	0.022 50
C211	ECKD1H223PF	0.022 50
C212	ECKD1H223PF	0.022 50
C213	ECKD1H101KB	100P 50
C214	ECEA1CKS100	10 16
C215	ECKR1H103ZF5	0.01 50
C216	ECEA1HKR47	0.47 50
C217	ECEA1HK010	1 50
C220	ECEA1CKS100	10 16
C222	ECFTD473KXL	0.047 25
C225	RCBS1H180JCY	18P 50
C226	ECKR1H103ZF5	0.01 50
C227	ECEA1CKS100	10 16
C230	ECKD1H471KB	470P 50
C303	ECKD1H561KB	560P 50
C304	ECKD1H561KB	560P 50
C305	ECKR1H331KB5	330P 50
C306	ECKR1H331KB5	330P 50
C307	ECQB1H822JZ	0.0082 50
C308	ECQB1H822JZ	0.0082 50
C309	ECEA0JK470	47 6.3
C310	ECEA0JK470	47 6.3
C311	ECEA1EK4R7	4.7 25
C312	ECEA1EK4R7	4.7 25
C315	ECFTD153KXL	0.015 25
C316	ECFTD153KXL	0.015 25
C317	ECFTD333KXL	0.033 25
C318	ECFTD333KXL	0.033 25
C319	ECKD1H681K	680P 50
C320	ECKD1H681K	680P 50
C321	ECKR1H331KB5	330P 50
C322	ECKR1H331KB5	330P 50
C323	ECQB1H822JZ	0.0082 50
C324	ECQB1H822JZ	0.0082 50
C325	ECEA0JK470	47 6.3
C326	ECEA0JK470	47 6.3
C327	ECEA1EK4R7	4.7 25
C328	ECEA1EK4R7	4.7 25
C329	ECFTD153KXL	0.015 25
C330	ECFTD153KXL	0.015 25
C331	ECEA1EK4R7	4.7 25
C332	ECEA1EK4R7	4.7 25
C335	ECQB1H333JZ3	0.033 50
C336	ECQB1H333JZ3	0.033 50
C339	ECFTD223KXL	0.022 25
C340	ECFTD223KXL	0.022 25
C343	ECFTD472KXL	0.0047 25
C344	ECFTD472KXL	0.0047 25
C345	ECEA1HKR33	0.33 50
C346	ECEA1HKR33	0.33 50
C347	ECCR1H020C5	2P 50
C348	ECCR1H020C5	2P 50
C349	ECEA1HK010	1 50
C350	ECEA1HK010	1 50
C351	ECCD1H560K	56P 50
C352	ECCD1H560K	56P 50
C353	ECKD1H681K	680P 50
C354	ECKD1H681K	680P 50
C355	ECEA1EK4R7	4.7 25
C356	ECEA1EK4R7	4.7 25
C357	ECCR1H020C5	2P 50
C358	ECCR1H020C5	2P 50
C401	ECKR1H103ZF5	0.01 50
C402	ECKR1H103ZF5	0.01 50
C403	ECKR1H103ZF5	0.01 50
C404	ECKR1H103ZF5	0.01 50
C405	ECEA1CU470	47 16
C406	ECEA1CU470	47 16
C407	ECEA1CK220	22 16
C408	ECEA1CU470	47 16
C410	ECKD1H221KB	220P 50

Ref. No.	Part No.	Value.
C411	ECKD1H221KB	220P 50
C412	ECQP1222JZ	0.0022 100
C413	ECQP1122JZ	0.0012 100
C414	ECQV1H104JZ	0.1 50
C415	ECQV1H104JZ	0.1 50
C416	ECQP1822FZ	0.0082 100
C417	ECFTD153KXL	0.015 25
C418	ECFTD332KXL	0.0033 25
C419	ECFTD332KXL	0.0033 25
C420	ECFTD682KXL	0.0068 25
C421	ECEA1CKS100	10 16
C422	ECKR1H103ZF5	0.01 50
C423	ECKR1H103ZF5	0.01 50
C424	ECFTD392KXL	0.0039 25
C425	ECKR1H103ZF5	0.01 50
C426	ECKR1H103ZF5	0.01 50
C427	ECEA1EK4R7	4.7 25
C428	ECEA1HK3R3	3.3 50
C435	ECBT1E103ZF	0.01 25
C437	ECKD1H223PF	0.022 50
C461	ECEA1CK100E	10 16
C501	ECEA1HK3R3	3.3 50
C502	ECEA1HK3R3	3.3 50
C503	ECKD1H101KB	100P 50
C504	ECKD1H101KB	100P 50
C505	ECKD1H102KB	0.001 50
C506	ECKD1H102KB	0.001 50
C507	ECEA0JK330	33 6.3
C508	ECEA0JK330	33 6.3
C509	ECFTD223KXL	0.022 25
C510	ECFTD223KXL	0.022 25
C511	ECFTD682KXL	0.0068 25
C512	ECFTD682KXL	0.0068 25
C513	ECEA1HK010	1 50
C514	ECEA1HK010	1 50
C515	ECKR1H103ZF5	0.01 50
C516	ECKR1H103ZF5	0.01 50
C517	ECEA1EK4R7	4.7 25
C518	ECEA1EK4R7	4.7 25
C519	ECKR1H103ZF5	0.01 50
C520	ECKR1H103ZF5	0.01 50
C521	ECKR1H103ZF5	0.01 50
C522	ECKR1H103ZF5	0.01 50
C523	ECCR1H470K5	47P 50
C525	ECEA1EK4R7	4.7 25
C526	ECEA1CKS100	10 16
C527	ECCD1H150KC	15P 50
C528	ECCD1H150KC	15P 50
C529	ECKD1H101KB	100P 50
C530	ECKD1H101KB	100P 50
C531	ECKD1H101KB	100P 50
C532	ECKD1H101KB	100P 50
C533	ECEA1HK010	1 50
C534	ECEA1HK010	1 50
C535	ECEA1HKR47	0.47 50
C536	ECEA1HKR47	0.47 50
C537	ECEA1HK010	1 50
C538	ECEA1HK010	1 50
C539	ECFTD473KXL	0.047 25
C540	ECFTD473KXL	0.047 25
C541	ECFTD183KXL	0.018 25
C542	ECFTD183KXL	0.018 25
C543	ECFTD104KXL	0.1 25
C544	ECFTD104KXL	0.1 25
C545	ECFTD332KXL	0.0033 25
C546	ECFTD332KXL	0.0033 25
C547	ECFTD223KXL	0.022 25
C548	ECFTD223KXL	0.022 25
C549	ECKR1H103ZF5	0.01 50
C550	ECKR1H103ZF5	0.01 50
C551	ECEA1AK470B	47 10
C552	ECEA1EK4R7	4.7 25
C553	ECFTD473KXL	0.047 25
C554	ECFTD473KXL	0.047 25
C555	ECEA1HK010	1 50
C556	ECEA1HK010	1 50
C557	ECEA1EK4R7	4.7 25

Ref. No.	Part No.	Value.
C558	ECEA1EK4R7	4.7 25
C559	ECBT1E103ZF	0.01 25
C560	ECKR1H103ZF5	0.01 50
C561	ECCR1H100F5	10P 50
C562	RCBS1H100JLY	10P 50
C563	ECCD1H560K	56P 50
C564	ECCD1H560K	56P 50
C565	ECKD1H221KB	220P 50
C566	ECKD1H221KB	220P 50
C567	ECKD1H101KB	100P 50
C568	ECKD1H101KB	100P 50
C569	ECKD1H101KB	100P 50
C570	ECKD1H101KB	100P 50
C571	ECKD1H101KB	100P 50
C572	ECKD1H101KB	100P 50
C601	ECEA1HK3R3	3.3 50
C602	ECEA1HK3R3	3.3 50
C603	ECKD1H101KB	100P 50
C604	ECKD1H101KB	100P 50
C605	ECKD1H102KB	0.001 50
C606	ECKD1H102KB	0.001 50
C607	ECCR1H120K5	12P 50
C608	ECCR1H120K5	12P 50
C609	ECEA1HS330	33 50
C610	ECKD1H102KB	0.001 50
C611	ECFTD473KXL	0.047 25
C612	ECFTD473KXL	0.047 25
C617	ECEA1CKS100	10 16
C618	ECEA1CKS100	10 16
C619	ECFTD473KXL	0.047 25
C621	ECFTD473KXL	0.047 25
C622	ECFTD473KXL	0.047 25
C623	ECKD1H102KB	0.001 50
C624	ECKD1H102KB	0.001 50
C625	ECKD1H102KB	0.001 50
C626	ECKD1H102KB	0.001 50

Ref. No.	Part No.	Value.
C627	ECKD1H221KB	220P 50
C628	ECKD1H221KB	220P 50
C629	ECFTD333KXY	0.033 25
C630	ECFTD333KXY	0.033 25
C631	RCBC1H471KBY	470P 50
C632	RCBC1H471KBY	470P 50
C701	ECEA1HU332U	3300 50
C702	ECEA1HU332U	3300 50
C703 ⚠	ECQM1104KZW	0.1 100
C704	ECEA1VU222	2200 35
C705	ECEA1CU470	47 16
C706	ECEA1CKS100	10 16
C707	ECEA1CU101	100 16
C708	ECEA1VU101	100 35
C709	ECEA1CU101	100 16
C710	ECKR1H103ZF5	0.01 50
C711	ECEA1CKS100	10 16
C712 ⚠	ECEA1CU471	470 16
C713	ECEA1HN010S	1 50
C715	ECKR2H102PU	0.001 500
C716 ⚠	ECKWNS103ZVS	0.01 250
C717	ECEA1HU101	100 50
C718	ECKR1H103ZF5	0.01 50
C719	ECKR1H103ZF5	0.01 50
C720	ECKR1H103ZF5	0.01 50
C721	ECKR1H103ZF5	0.01 50
C722	ECEA1CU101	100 16
C801	ECBT1E103ZF	0.01 25
C802	ECEA0JK101	100 6.3
C803	ECBT1E103ZF	0.01 25
C804	ECEA0JS102	1000 6.3
C805	RCBS1H271KBY	270P 50
C806	RCBS1H271KBY	270P 50
C807	ECEA1HK2R2B	2.2 50
C808	RCBS1H271KBY	270P 50
C809	ECEA1HK2R2B	2.2 50

Ref. No.	Part No.	Value.
C811	RCBC1H101KBY	100P 50
C812	RCBC1H101KBY	100P 50
C813	RCBC1H101KBY	100P 50
C814	ECKR1H103ZF5	0.01 50
C815	ECKR1H103ZF5	0.01 50
C816	ECBT1E103ZF	0.01 25
C817	ECKR1H103ZF5	0.01 50
C818	ECKR1H103ZF5	0.01 50
C819	ECKR1H103ZF5	0.01 50
C820	ECKR1H103ZF5	0.01 50
C821	ECKR1H103ZF5	0.01 50
C822	ECFR1E104ZF5	0.1 25
C823	ECQB1H822JZ	0.0082 50
C824	ECFR1E104ZF5	0.1 25
C825	ECFR1E104ZF5	0.1 25
C826	ECQB1H822JZ	0.0082 50
C827	ECEA0JK470	47 6.3
C828	ECEA0JK470	47 6.3
C829	ECFR1E104ZF5	0.1 25
C830	ECFR1E104ZF5	0.1 25
C831	ECEA0JS102	1000 6.3
C901	ECFTD472KXL	0.0047 25
C902	ECFTD472KXL	0.0047 25
C903	ECEA1HK010	1 50
C904	ECEA1HK010	1 50
C905	ECEA1HK010	1 50
C906	ECEA1HK010	1 50
C907	ECEA1CKS100	10 16
C908	ECEA1CKS100	10 16
C909	ECAG25ER68L	0.68 50
C910	ECAG25ER68L	0.68 50
C911	ECEA1CKS100	10 16
C912	ECEA1CKS100	10 16
C913	ECEA1CU221	220 16
C914	ECEA1AU471	470 10
C915	ECEA1CKS100	10 16
C916	ECEA1CKS100	10 16

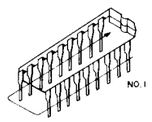
■ REPLACEMENT PARTS LIST

Notes : * Important safety notice :
Components identified by ⚠ mark have special characteristics important for safety. When replacing any of these components use only manufacturer's specified parts.
* Bracketed indications in Ref. No. columns specify the area. (Refer to the first page for area.)
Parts without these indications can be used for all areas.

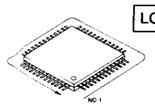
Ref. No.	Part No.	Description
INTEGRATED CIRCUITS		
IC11	LC8512A-3377	I.C, MICRO-COMPUTER
IC101	LM7001	I.C, FREQUENCY SYNTH.
IC151	SVIUPC1161C3	I.C, FM MPX
IC201	AN7273B	I.C, FM/AM I F AMP.
IC301	AN6558F	I.C, PLAYBACK AMP
IC302	AN6558F	I.C, PLAYBACK AMP
IC303	AN6552F	I.C, PRE AMP
IC304	AN6552F	I.C, REC AMP
IC305	AN6552F	I.C, BUFFER
IC501	AN6558F	I.C, BUFFER
IC502	TC9164N	I.C
IC503	AN6558F	I.C, BUFFER
IC504	TC9212P	I.C, VOLUME CONT.
IC505	AN6558F	I.C, BUFFER
IC506	AN6558F	I.C, BUFFER
IC601	SVI3101B	I.C, POWER
IC701	AN7812	I.C, REGULATOR
IC702	AN78M05	I.C, REGULATOR
IC703	AN7815	I.C, REGULATOR
IC801	LC6554H-3635	I.C, MICRO COMPUTER
IC802	AN80B22	I.C, L.E.D DRIVE
IC803	TC9312AN-073	I.C, MECHANISM CONT.
IC804	TC9312AN-072	I.C, MECHANISM CONT.
IC805	AN80B22	I.C, INTERFACE
IC901	CXA1101P	I.C
TRANSISTORS		
Q2	2SC2786M	TRANSISTOR
Q17	2SC1740SSTA	TRANSISTOR
Q18	2SA933SSTA	TRANSISTOR
Q71	2SC1685RS	TRANSISTOR
Q101	2SC1740SSTA	TRANSISTOR
Q102	2SC1740SSTA	TRANSISTOR
Q151	2SC1740SSTA	TRANSISTOR
Q152	2SC1740SSTA	TRANSISTOR
Q153	2SA933SSTA	TRANSISTOR
Q201	2SC2787L	TRANSISTOR
Q202	2SC2787L	TRANSISTOR
Q205	2SC1740SSTA	TRANSISTOR
Q206	2SC1740SSTA	TRANSISTOR
Q207	2SC1740SSTA	TRANSISTOR
Q208	2SA933SSTA	TRANSISTOR
Q209	2SA933SSTA	TRANSISTOR
Q210	2SC1740SSTA	TRANSISTOR
Q305	2SC1740SSTA	TRANSISTOR
Q306	2SC1740SSTA	TRANSISTOR
Q307	2SD1450STTA	TRANSISTOR
Q308	2SD1450STTA	TRANSISTOR
Q309	2SC1740SSTA	TRANSISTOR
Q310	2SC1740SSTA	TRANSISTOR
Q311	2SC2784EFTA	TRANSISTOR
Q312	2SC2784EFTA	TRANSISTOR
Q313	2SC2784EFTA	TRANSISTOR
Q315	2SC1740SSTA	TRANSISTOR
Q316	2SC1740SSTA	TRANSISTOR
Q317	2SD1450STTA	TRANSISTOR
Q318	2SD1450STTA	TRANSISTOR
Q319	2SD1450STTA	TRANSISTOR
Q320	2SD1450STTA	TRANSISTOR
Q325	2SC1740SSTA	TRANSISTOR
Q326	2SC1740SSTA	TRANSISTOR
Q329	2SD1450STTA	TRANSISTOR
Q330	2SD1450STTA	TRANSISTOR
Q401	2SA933SSTA	TRANSISTOR
Q404	2SC1740SSTA	TRANSISTOR
Q405	2SC1740SSTA	TRANSISTOR
Q406	2SC2784EFTA	TRANSISTOR
Q407	2SC2784EFTA	TRANSISTOR
Q408	2SD1450STTA	TRANSISTOR
Q409	2SD1450STTA	TRANSISTOR
Q411	DTA114ESTP	TRANSISTOR
Q412	2SC1740SSTA	TRANSISTOR
Q413	2SB621A-R	TRANSISTOR
Q414	2SD1450STTA	TRANSISTOR
Q415	2SC1384A-R	TRANSISTOR
Q416	2SA933SSTA	TRANSISTOR
Q417	2SC1740SSTA	TRANSISTOR
Q501	2SD1450STTA	TRANSISTOR
Q502	2SD1450STTA	TRANSISTOR
Q503	2SA933SSTA	TRANSISTOR
Q505	2SC1740SSTA	TRANSISTOR
Q506	2SC1740SSTA	TRANSISTOR
Q507	2SC1740SSTA	TRANSISTOR
Q508	2SC1740SSTA	TRANSISTOR
Q509	2SC1740SSTA	TRANSISTOR
Q510	2SC1740SSTA	TRANSISTOR
Q701	2SB941-P	TRANSISTOR
Q702	2SA933SSTA	TRANSISTOR
Q801	DTC124ES	TRANSISTOR
Q802	DTC124ES	TRANSISTOR
Q803	2SA933SSTA	TRANSISTOR
Q805	2SB1030Q	TRANSISTOR
Q806	2SC1740SSTA	TRANSISTOR
Q807	2SB1030Q	TRANSISTOR
Q808	2SC1740SSTA	TRANSISTOR
Q810	2SA933SSTA	TRANSISTOR
Q811	2SB621A-R	TRANSISTOR
Q812	2SB621A-R	TRANSISTOR
Q813	2SC1740SSTA	TRANSISTOR
Q814	2SC1740SSTA	TRANSISTOR
Q815	DTC114YSTP	TRANSISTOR
Q821	2SA933SSTA	TRANSISTOR
Q901	2SC1740SSTA	TRANSISTOR
Q903	2SD1450STTA	TRANSISTOR
Q904	2SD1450STTA	TRANSISTOR
DIODES		
D6	MA165	DIODE
D7	MA165	DIODE
D8	MA165	DIODE
D9	MA165	DIODE
D10	MA165	DIODE
D11	MA165	DIODE
D12	MA165	DIODE
D13	MA165	DIODE
D14	MA165	DIODE
D15	MA165	DIODE
D16	MA165	DIODE
D17	MA165	DIODE
D18	MA165	DIODE
D19	MA165	DIODE
D20	MA165	DIODE
D21	MA4051-M	DIODE
D31	MA165	DIODE
D34	MA165	DIODE
D71	MA4062M	DIODE
D72	MA4270	DIODE
D101	MA165	DIODE
D151	MA165	DIODE
D204	MA165	DIODE
D206	MA165	DIODE
D401	MA165	DIODE
D402	MA4062	DIODE
D403	MA165	DIODE
D404	MA29WA	DIODE
D406	MA165	DIODE
D407	MA165	DIODE
D408	MA165	DIODE
D410	MA165	DIODE
D411	MA165	DIODE
D412	MA165	DIODE
D413	MA29WA	DIODE
D414	MA165	DIODE
D504	MA165	DIODE
D701 ⚠	GP15GLF	DIODE
D702 ⚠	GP15GLF	DIODE
D703 ⚠	GP15GLF	DIODE
D704 ⚠	GP15GLF	DIODE
D705 ⚠	SVD1SR35200A	DIODE
D706 ⚠	SVD1SR35200A	DIODE
D707 ⚠	SVD1SR35200A	DIODE
D708 ⚠	SVD1SR35200A	DIODE
D709	MA165	DIODE
D710	MA165	DIODE
D711 ⚠	SVD1SR35200A	DIODE
D712	MA165	DIODE
D801	MA165	DIODE
D803	LN058449P	L.E.D.
D804	LN058449P	L.E.D.
D805	LN058449P	L.E.D.
D806	LN058449P	L.E.D.
D807	LN058449P	L.E.D.
D809	LN081450P	L.E.D
D810	LN081450P	L.E.D
D811	LN081450P	L.E.D
D812	LN081450P	L.E.D
D813	LN081450P	L.E.D
D814	LN081450P	L.E.D
D815	LN081450P	L.E.D
D816	LN081450P	L.E.D
D819	LN346GP-C	DIODE, GAASP
D820	LN846RP-C	L.E.D
D822	LN346GP-C	DIODE, GAASP
D823	LN846RP-C	L.E.D
D825	MA165	DIODE
D826	MA165	DIODE
D827	MA165	DIODE
D828	MA165	DIODE
D829	MA165	DIODE
D830	MA165	DIODE
D831	MA165	DIODE
D832	MA165	DIODE
D833	MA165	DIODE
D834	MA165	DIODE
D835	MA165	DIODE
D836	MA165	DIODE
D841	LN346GP-C	DIODE, GAASP
D842	LN346GP-C	DIODE, GAASP
D845	MA165	DIODE
D901	MA165	DIODE
D902	MA165	DIODE
D903	MA165	DIODE
D904	MA165	DIODE
VARIABLE RESISTORS		
VR151	EVND4AA00B53	V.R, FM MPX VCO
VR301	EVND4AA00B24	V.R, PLAYBACK GAIN(B)
VR302	EVND4AA00B24	V.R, PLAYBACK GAIN(B)
VR303	EVND4AA00B24	V.R, PLAYBACK GAIN(A)
VR304	EVND4AA00B24	V.R, PLAYBACK GAIN(A)
VR305	EVND4AA00B54	V.R., REC CURRENT ADJ.
VR306	EVND4AA00B54	V.R., REC CURRENT ADJ.
VR401	EVND4AA00B25	V.R., REC BIAS ADJ.
VR402	EVND4AA00B25	V.R., REC BIAS ADJ.
VR403	EVND4AA00B53	V.R, ERASE CURRENT
VR501	EWCXEA011C15	V.R
VR502	EWCXEA011C15	V.R
VR801	EVQWWVF2024B	V.R., VOLUME
PHOTO COUPLER		
Z11	GP1U509M	DIODE , REMOTE SENSOR
COILS AND TRANSFORMERS		
L102	RLQZP1R2KT-Y	CHOKE COIL
L171	RLQZP1R2KT-Y	CHOKE COIL
L171	SLM1B9-P	MPX COIL
L172	SLM1B9-P	MPX COIL
L174	SLM1B10-M	COIL
L203	ELEPK1R0MA	COIL
L204	ELEPK1R0MA	COIL
L301	SLQX303-1K	CHOKE COIL
L302	SLQX303-1K	CHOKE COIL
L303	QLB5X2722D	COIL
L304	QLB5X2722D	COIL
L401	SL09C9-K	OSCILLATOR COIL
L601	SLQY07G-30	COIL
L602	SLQY07G-30	COIL
L701 ⚠	SLQZ650MH49	CHOKE COIL
L801	ELEPK101KA	CHOKE COIL
L802	ELEPK101KA	CHOKE COIL
L803	ELEPK101KA	CHOKE COIL
L804	ELEPK101KA	CHOKE COIL
L805	SLQU270-4Y	CHOKE COIL
L806	SLQU270-4Y	CHOKE COIL
L807	SLQU270-4Y	CHOKE COIL
L808	SLQU270-4Y	CHOKE COIL
L901	SLM1B9-P	MPX COIL
L902	SLM1B9-P	MPX COIL
T201	SLI4B511-Z	I.F.TRANSFORMER
T202	SLI4B513-Z	I.F.TRANSFORMER
T701 ⚠	SLT5M532	POWER TRANSFORMER
COMPONENT COMBINATIONS		
Z11	EXBF8E104J	COMPONENT COMBINATION
Z12	EXBF9E104J	COMBINATION
Z13	EXFP8331MW	COMBINATION
Z171	SLA4Z13-Z	ANTENNA COIL
Z201	SLA2Z1-T	COIL
Z202	SLI7Z101-T	I.F.TRANSFORMER
Z801	EXBF6E331J	COMBINATION PART
Z802	EXBF9E102J	COMBINATION PART
Z803	EXBF5E472J	COMPONENT COMBINATION
FILTERS		
CF201	SVFE107MS8A	CERAMIC FILTER (RED)
CF201	SVFE107MS8D	CERAMIC FILTER (BLACK)
CF201	SVFE107MS8E	CERAMIC FILTER (WHITE)
CF202	SVFE107MS8A	CERAMIC FILTER (RED)
CF202	SVFE107MS8D	CERAMIC FILTER (BLACK)
CF202	SVFE107MS8E	CERAMIC FILTER (WHITE)
OSCILLATORS		
X12	EF0A960K04A	CRYSTAL OSCILLATOR
X101	SVQ49U722-DM	OSCILLATOR
X801	EF0FC3004A4	CRYSTAL OSCILLATOR
DISPLAYS		
FL11	SAD8MT42ZYK	DISPLAY TUBE
FRONT PACKS		
Z1	SNVFE337G01	TUNER PACK
FUSES		
F1 ⚠	XBA2C06TB0	FUSE 250V, T600mA
SWITCHES		
S1	EVQQB005R	SW, CH1
S2	EVQQB005R	SW, CH2
S3	EVQQB005R	SW, CH3
S4	EVQQB005R	SW, CH4
S5	EVQQB005R	SW, CH5
S6	EVQQB005R	SW, CH6
S7	EVQQB005R	SW, CH7
S8	EVQQB005R	SW, CH8
S9	EVQQB005R	SW, CH9
S10	EVQQB005R	SW, CH0
S11	EVQQB005R	SW, FM
S12	EVQQB005R	SW, MW
S14	EVQQB005R	SW, MEMORY
S15	EVQQB005R	SW, MODE
S16	EVQQB005R	SW, DOWN
S17	EVQQB005R	SW, UP
S501	SSH1196	SW, SUPER BASS
S701 ⚠	ESB8249V	SW, POWER
S801	EVQQB005R	SW, AUX
S802	EVQQB005R	SW, TAPE
S803	EVQQB005R	SW, TUNER
S804	EVQQB005R	SW, CD
S805	EVQQB005R	SW, PHONO

Ref. No.	Part No.	Description
S806	EVQQB005R	SW, L
S807	EVQQB005R	SW, R
S808	EVQQB005R	SW, MUTE
S809	EVQQB005R	SW, FF
S810	EVQQB005R	SW, PLAY
S811	EVQQB005R	SW, STOP
S813	EVQQB005R	SW, REW
S814	EVQQB005R	SW, REC MUTE
S815	EVQQB005R	SW, FF
S816	EVQQB005R	SW, PLAY
S817	EVQQB005R	SW, STOP
S819	EVQQB005R	SW, REW
S820	EVQQB005R	SW, STOP
S821	EVQQB005R	SW, DUB
S822	EVQQB005R	SW, WR/DUB
S823	SSS180-1	SLIDE SWITCH
S824	SSS180-1	SLIDE SWITCH
S901	SSH1159	SW, SPEAKER, DOLBY NR
DECK(A)		
SWITCHES		
S971	RSH1A89Z	SW, MODE
S972	RSH1A90Z	SW, HALF
S973	RSH1A90Z	SW, REC
S974	RSH1A90Z	SW, CR
DECK(B)		
SWITCHES		
S951	RSH1A89Z	SW, MODE
S952	RSH1A90Z	SW, HALF
S953	RSH1A90Z	SW, CR

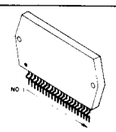
■ TERMINAL GUIDE OF IC'S, TRANSISTORS AND DIODES



AN6552F	8 Pin	LM7001	16 Pin	TC9164N	28 Pin
AN6558F	8 Pin	AN90B22	18 Pin	TC9312AN-072	28 Pin
CXA1101P	16 Pin	AN7273A	18 Pin	TC9312AN-073	28 Pin
AN7470	16 Pin	TC9212P	20 Pin	LC6554H-3635	64 Pin



LC6512A-3377 | 48 Pin



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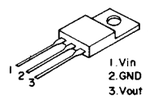

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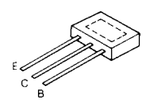
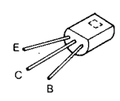
AN7815
AN781105



2SD1450R, 2SC2787L
2SC2784E, 2SC1675F
2SA933S, 2SC2786M
2SC1740S, 2SC1384A-Q
2SB1030R, 2SC1685R



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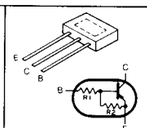

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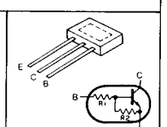

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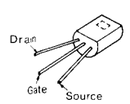
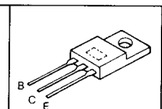


2SK544F



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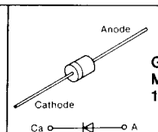
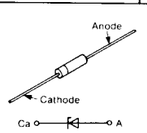
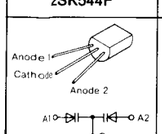


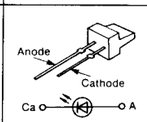
GP15GLF, 1SR35200,
MA165, MA29WA,
1SS254



MA4082M
MA4030M
MA4051M
MA4062M
MA4270M



SVC211SPA-AL



LN846RP, LN346GP

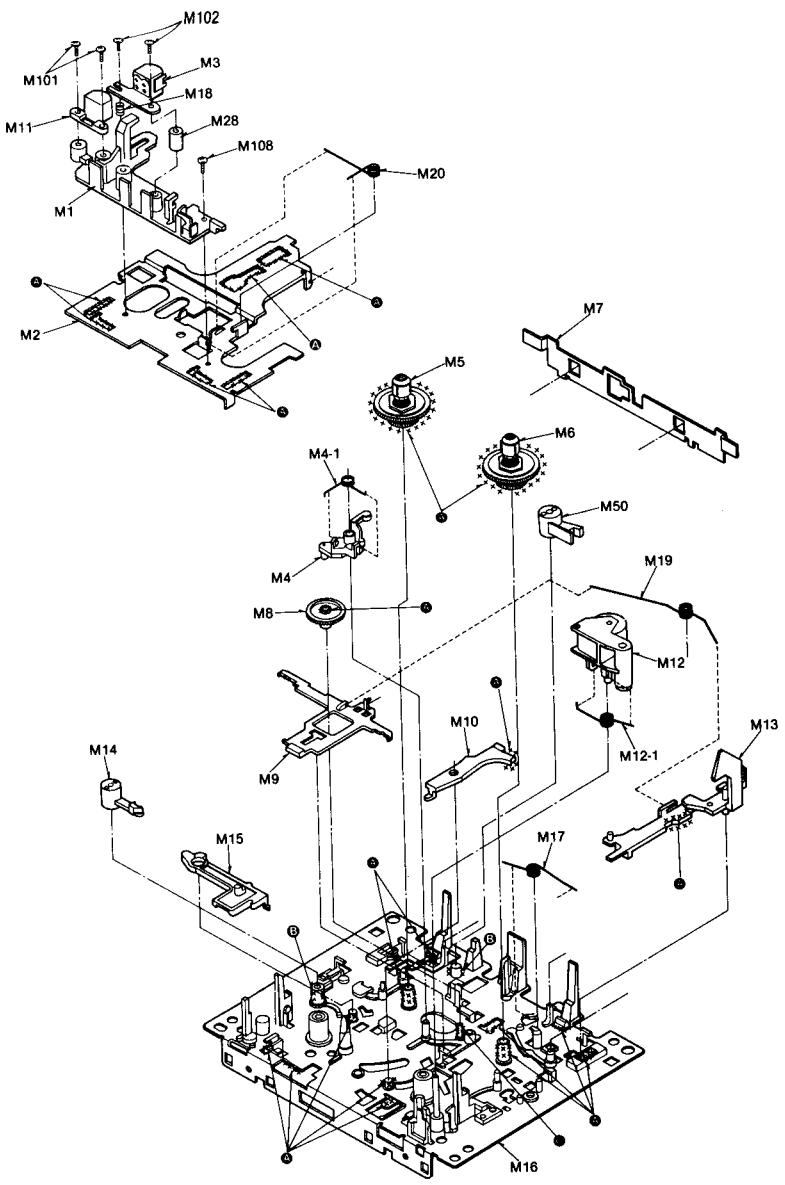
■ REPLACEMENT PARTS LIST

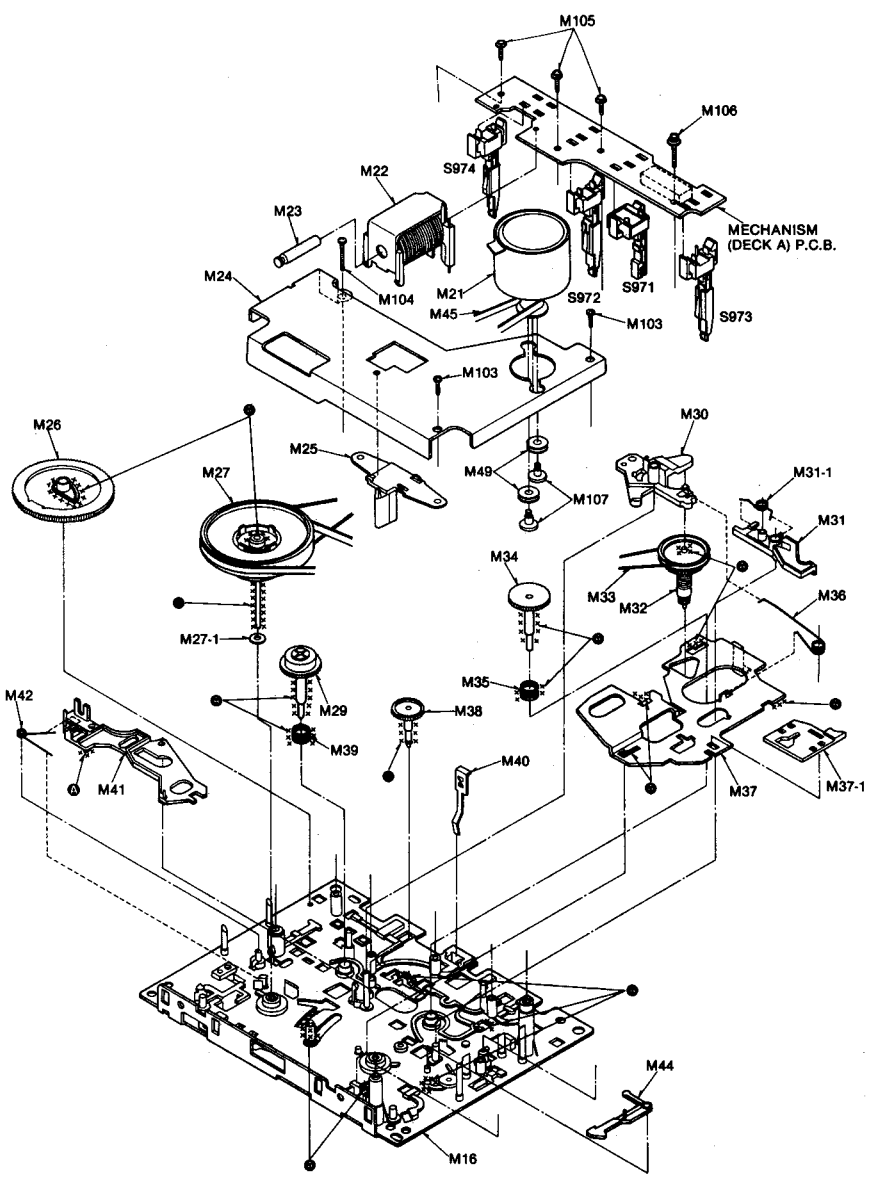
Notes : * Important safety notice :
Components identified by ⚠ mark have special characteristics important for safety. When replacing any of these components use only manufacturer's specified parts.
* Bracketed indications in Ref. No. columns specify the area. (Refer to the first page for area.)
Parts without these indications can be used for all areas.

Ref. No.	Part No.	Description
DECK(A)		
CASSETTE DECK		
M1	RMD5013ZB	HEAD SP
M2	RUA793YA	CHASSIS
M3	RJH4C36GZAM	MAGNETIC HEAD
M4	1UB0089ZA	ARM
M4-1	RUW148ZA	COIL SPRING
M5	1DM0005ZA	REEL TABLE ASS'Y
M6	1DM0017ZA	REEL TABLE ASS'Y
M7	RUB502ZC	LEVER
M8	RDG5772Z	GEAR
M9	RUB508ZA	ROD
M10	RUB506ZB	LEVER
M11	RJH7E5YAM	MAGNETIC HEAD
M12	1UB0087ZA	ARM
M12-1	RUW140ZB	COIL SPRING
M13	RUB507ZC	ROD
M14	RNL1Z	DAMPER ARM
M15	RUB503ZB	LEVER
M16	RZUAR300	PLATE
M17	RUW142ZA	COIL SPRING
M18	QBA51278	SPRING
M19	RUW144ZA	EJECT ROD SPRING
M20	RUW139ZA	SPRING
M21	RFM144ZA	MOTOR
M22	1UE0015ZA	PLUNGER
M23	RUB428Z	LEVER
M24	RUL1030ZC	ANGLE
M25	RMD5017ZA	ANGLE
M26	RDG5927ZA	GEAR
M27	1DW0037ZA	FLYWHEEL ASS'Y
M27-1	RNW139ZA	WASHER
M28	RHM278ZA	SPACER
M29	1DG0006ZA	GEAR ASS'Y
M30	RUB513ZC	ARM
M31	1UB0091ZA	LEVER
M31-1	RUW146ZA	COIL SPRING
M32	1DR0011ZA	PULLEY ASS'Y
M33	RDV90ZB	BELT
M34	RDG5769ZA	GEAR
M35	RUQ10Z	SPRING
M36	RUW145ZA	COIL SPRING
M37	1UB0090ZA	ROD
M37-1	RUB512ZB	ROD
M38	RDG5773Z	GEAR
M39	RUQ30Z	SPRING
M40	RUS609Z	SPRING
M41	RUB514ZB	LEVER
M42	RUW147ZA	COIL SPRING
M44	RUB509ZA	LEVER
M45	RDV109ZA	BELT
M49	RHG3032Z	RUBBER CUSHION
M50	RNL180ZA	DAMPER ARM
M101	QHQ1361A	SCREW
M102	RHE5201ZA	SCREW
M103	XTN26+7J	SCREW
M104	XTN26+16F	SCREW
M105	XTW2+8S	SCREW
M106	XYC2+JF16	SCREW
M107	XSN26+3	SCREW
M108	XTN2+5F	SCREW

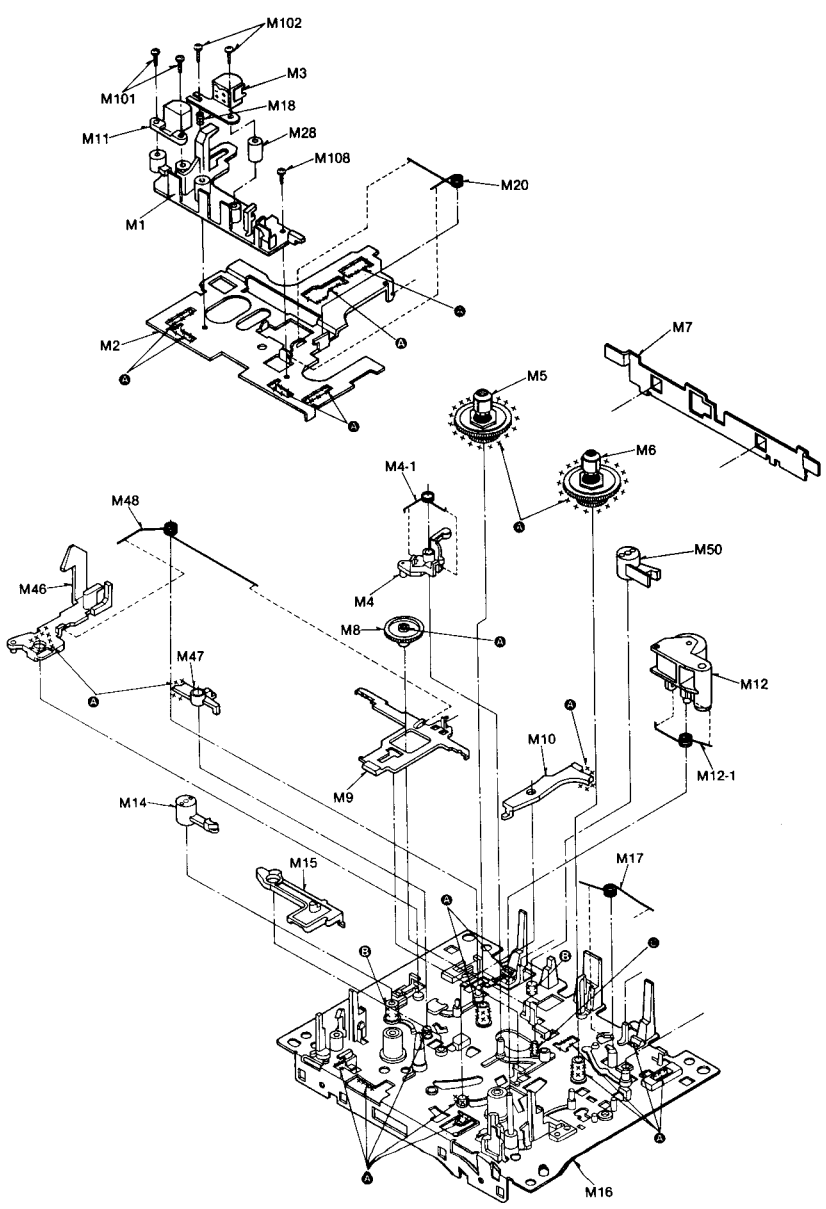
Ref. No.	Part No.	Description
DECK(B)		
CASSETTE DECK		
M1	RMD5013ZB	HEAD SP
M2	RUA793YA	CHASSIS
M3	RJH4C34GVAM	MAGNETIC HEAD
M4	1UB0089ZA	ARM
M4-1	RUW148ZA	COIL SPRING
M5	1DM0005ZA	REEL TABLE ASS'Y
M6	1DM0017ZA	REEL TABLE ASS'Y
M7	RUB502ZC	LEVER
M8	RDG5772Z	GEAR
M9	RUB508ZA	ROD
M10	RUB506ZB	LEVER
M11	RUG82Z	DAMYE HEAD
M12	1UB0087ZA	ARM
M12-1	RUW140ZB	COIL SPRING
M13	RUB507ZC	ROD
M14	RNL1Z	DAMPER ARM
M15	RUB503ZB	LEVER
M16	RZUAR300	PLATE
M17	RUW142ZA	COIL SPRING
M18	QBA51278	SPRING
M19	RUW144ZA	EJECT ROD SPRING
M20	RUW139ZA	SPRING
M21	RFM138ZA	MOTOR
M22	1UE0015ZA	PLUNGER
M23	RUB428Z	LEVER
M24	RUL1030ZC	ANGLE
M25	RMD5017ZA	ANGLE
M26	RDG5927ZA	GEAR
M27	1DW0037ZA	FLYWHEEL ASS'Y
M27-1	RNW139ZA	WASHER
M28	RHM278ZA	SPACER
M29	1DG0006ZA	GEAR ASS'Y
M30	RUB513ZC	ARM
M31	1UB0091ZA	LEVER
M31-1	RUW146ZA	COIL SPRING
M32	1DR0011ZA	PULLEY ASS'Y
M33	RDV90ZB	BELT
M34	RDG5769ZA	GEAR
M35	RUQ10Z	SPRING
M36	RUW145ZA	COIL SPRING
M37	1UB0090ZA	ROD
M37-1	RUB512ZB	ROD
M38	RDG5773Z	GEAR
M39	RUQ30Z	SPRING
M40	RUS609Z	SPRING
M41	RUB514ZB	LEVER
M42	RUW147ZA	COIL SPRING
M44	RUB509ZA	LEVER
M45	RDV109ZA	BELT
M46	RUB541Z	EJECT ROD (L)
M47	RUB542Z	LEVER
M48	RUW167Z	EJECT ROD SPRING
M49	RHG3032Z	RUBBER CUSHION
M50	RNL180ZA	DAMPER ARM
M101	QHQ1361A	SCREW
M102	RHE5201ZA	SCREW
M103	XTN26+7J	SCREW
M104	XTN26+16F	SCREW
M105	XTW2+8S	SCREW
M106	XYC2+JF16	SCREW
M107	XSN26+3	SCREW
M108	XTN2+5F	SCREW

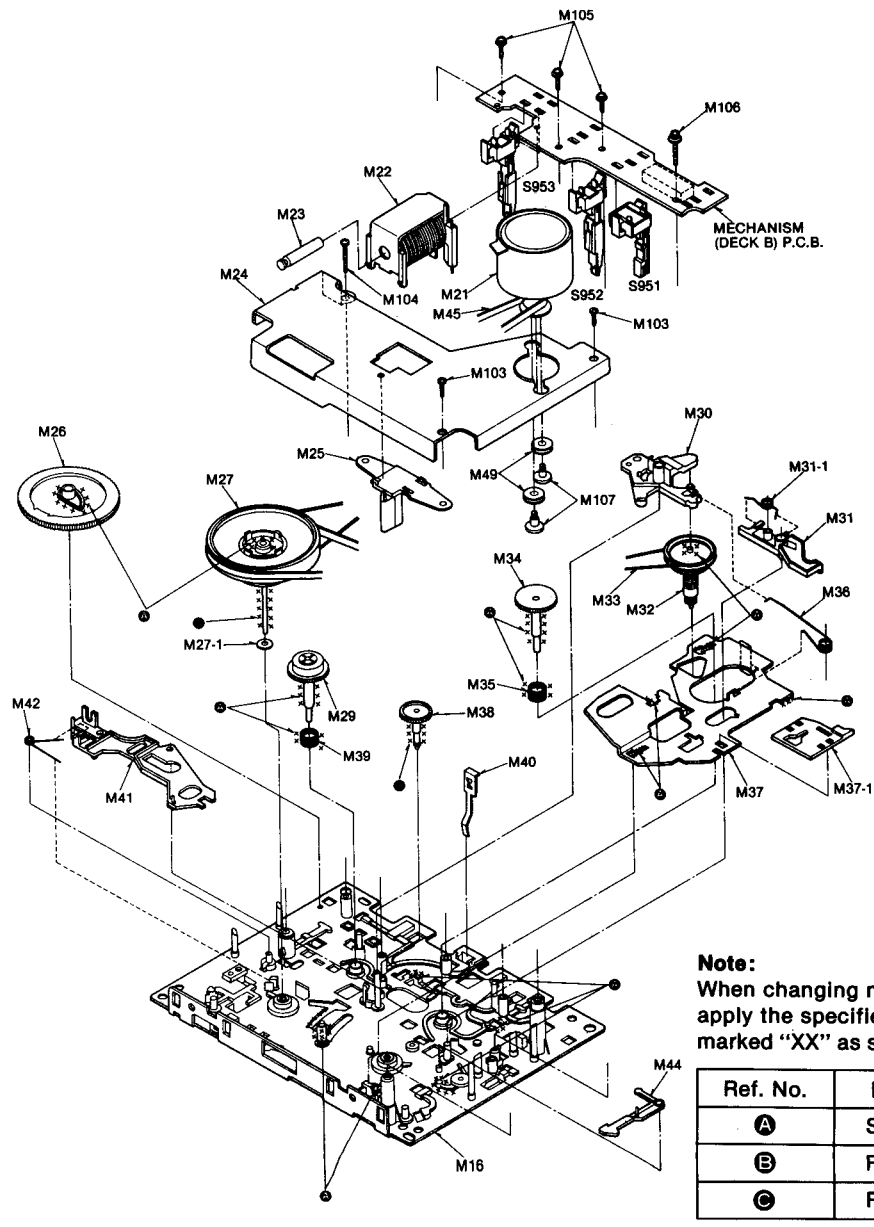
• DECK A





• DECK B

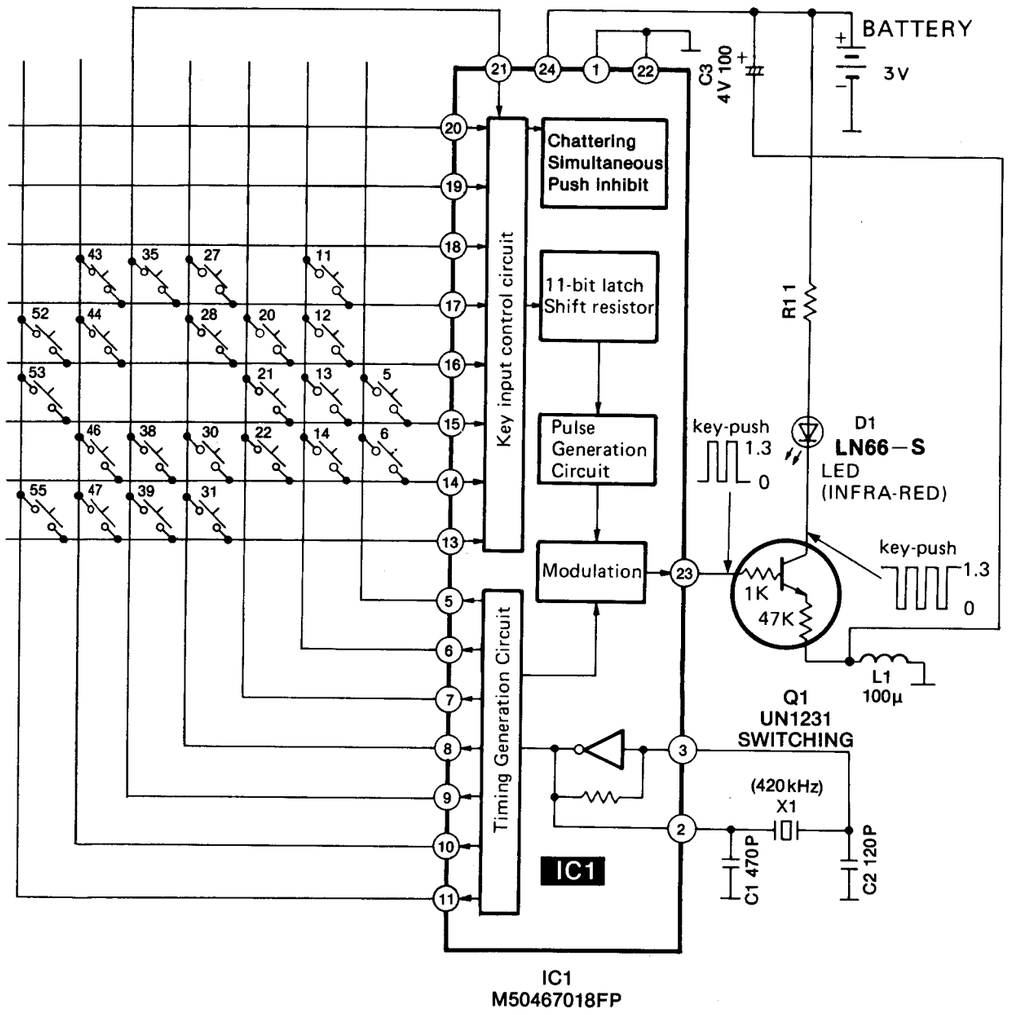




Note:
When changing mechanism parts, apply the specified grease to areas marked "XX" as shown in the drawing.

Ref. No.	Part No.
Ⓐ	SZZOL18
Ⓑ	RZZOL05
Ⓒ	RZZOL02

■ SCHEMATIC DIAGRAM OF REMOTE-CONTROL TRANSMITTER

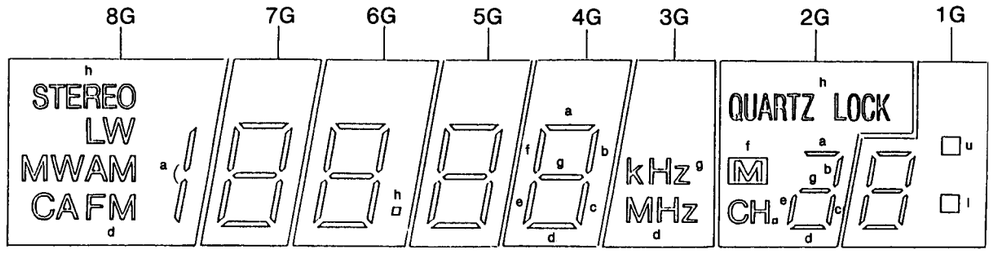


IC1
M50467018FP

Key No.	Function	Key No.	Function	Key No.	Function
5	VOLUME ▲ UP	22	TUNER 7	43	CD SKIP/SEARCH ▶▶I
6	TUNER 5	27	CD ■ STOP	44	TAPE ■ STOP
11	CD ▶ PLAY/II PAUSE	28	TAPE ▶▶ FF	46	TUNER 0
12	TAPE ▶ PLAY	30	TUNER 8	47	TUNER 3
13	VOLUME ▼ DOWN	31	TUNER 1	52	TAPE DECK A●REC PAUSE
14	TUNER 6	35	CD SKIP/SEARCH I◀◀	53	TAPE DECK A/B
20	TAPE ◀◀ REW	38	TUNER 9	55	TUNER 4
21	AUDIO MUTING −20dB	39	TUNER 2		

■ INTERNAL CONNECTION OF FL

•GRID ASSIGNMENT

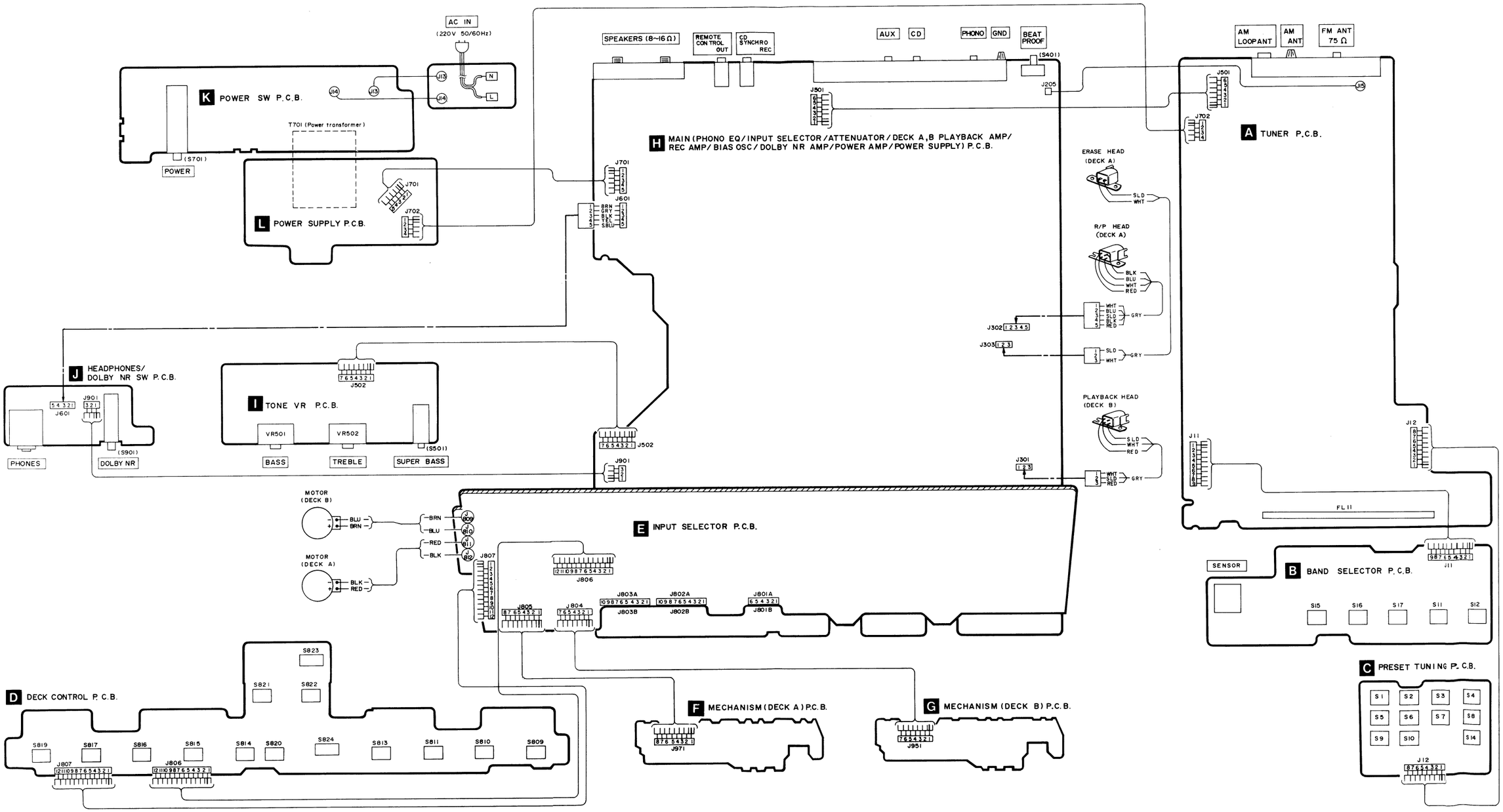


Note: The grid of 3G and 8G are used for external connection.

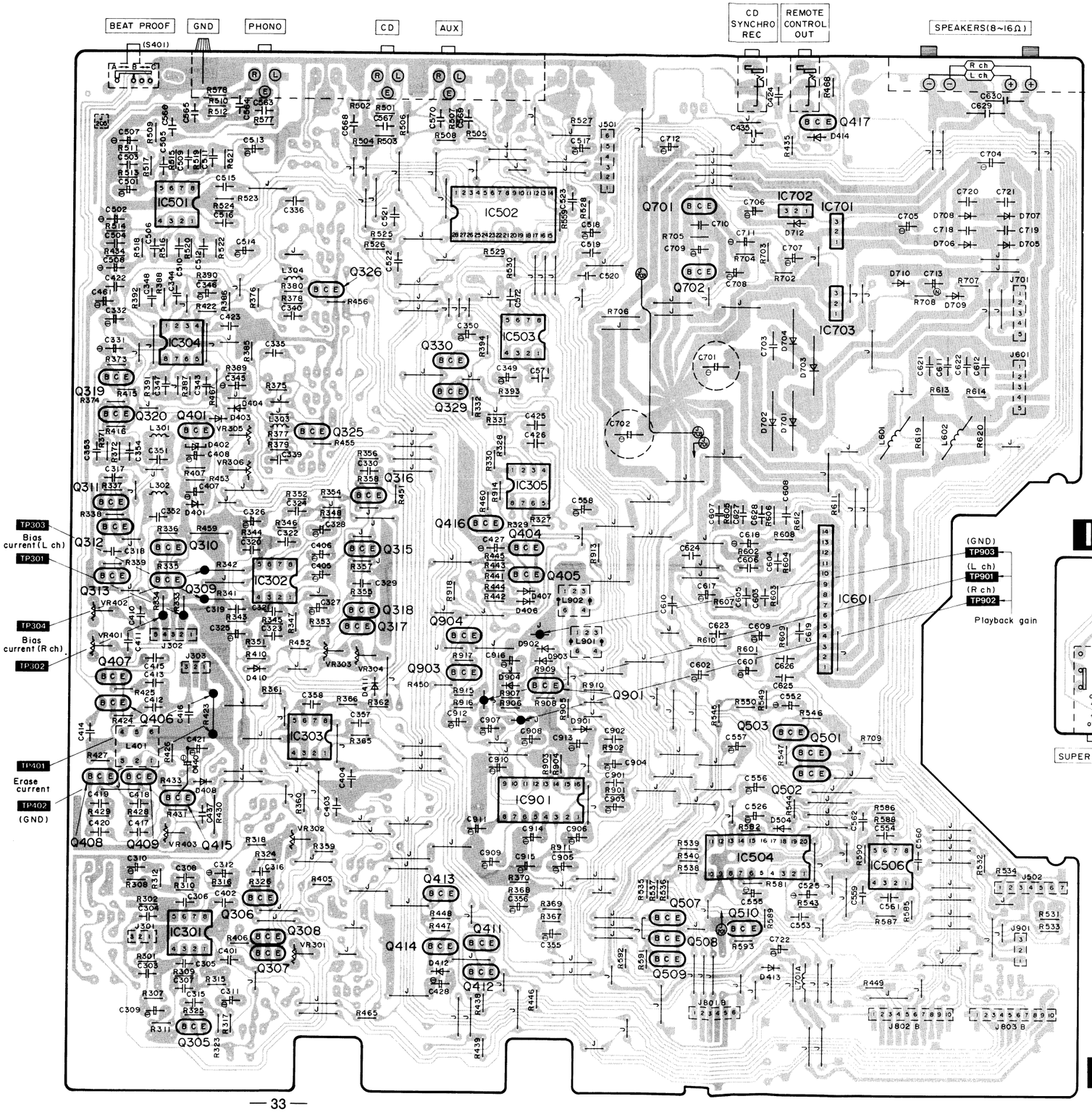
•PIN CONNECTION

PIN NO.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35
CONNECTION	F1	F1	NP	h	f	8G	AM	MW	CA	LW	7G	c	a	6G	e	d	g	5G	b	NP	4G	NP	NP	3G	NP	NP	CH	2G	NP	u	1G	ℓ	NP	F2	F2

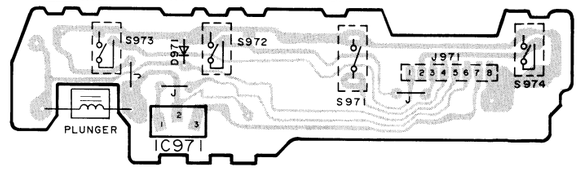
■ PRINTED CIRCUIT BOARD AND WIRING CONNECTION DIAGRAM



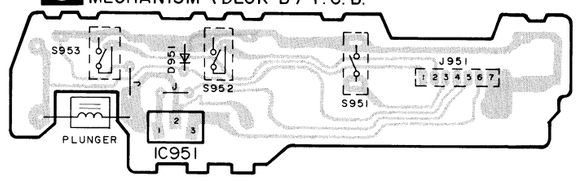
■ PRINTED CIRCUIT BOARDS



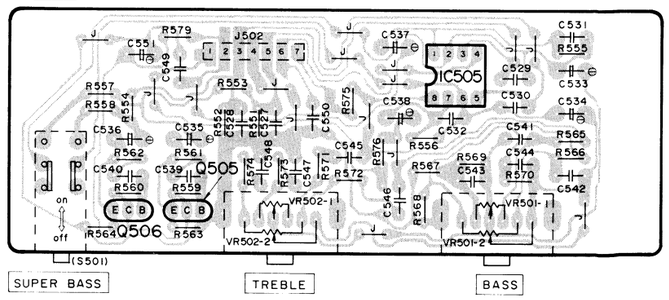
F MECHANISM (DECK A) P.C.B.



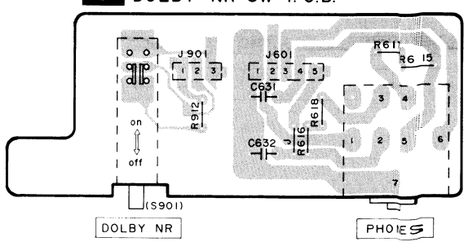
G MECHANISM (DECK B) P.C.B.



I TONE VR P.C.B.



J HEADPHONES/ DOLBY NR SW P.C.B.



H MAIN (PHONO EQ / INPUT SELECTOR / ATTENUATOR / DECK A,B PLAYBACK AMP / REC AMP / BIAS OSC / DOLBY NR AMP / POWER AMP / POWER SUPPLY) P.C.B.

B BAND SELECTOR P.C.B.

J11 · R59 · S12 · S11 · S17 · S16 · S15

(AM) (FM) BAND SELECTOR

(UP) (DOWN) TUNING

FM MODE

AC IN
AC 220V (50/60Hz)

N · L · L701 · J13 · J14

SENSOR

K POWER SW P.C.B.

T701 (Power transformer) · C716 · F1 T630mA · (S701) · POWER

L POWER SUPPLY P.C.B.

R710 · J701 · J702 · C717 · C715 · D711 · R712

TIMER

D DECK CONTROL P.C.B.

S823 (play—off—rec)

S822 (REW AUTO EDIT) · S821 (TAPE EDIT) · R849

(Play ▶ ind.) · (Remote control ind.) · D819 · D841 · R841

D820 (Edit ind.) · D823 (Rec ind.) · R842 · R844 · R846 · R847

S809 · S810 · S811 · S813 · S820 · S814 · S824

D825 · D826 · D827 · D828 · D829 · D830

(FF/▶▶) (PLAY/▶) (STOP/■) (REW/◀◀)

DECK B(PLAYBACK)

PLAYBACK MODE

● REC PAUSE ○ REC MUTE

(Play/▶ ind.) · D822

(Remote control ind.) · D842

S815 · S816 · S817 · S819 · J806 · J807

D831 · D832 · D833 · D834 · D835 · D836 · D845

Q821 · R869 · R850 · R848 · R845 · Q810

(FF/▶▶) (PLAY/▶) (STOP/■) (REW/◀◀)

DECK A(RECORD/PLAYBACK)

C PRESET TUNING P.C.B.

24 CHANNEL RANDOM PRESET TUNING

S4 (4) · S3 (3) · S1 (1) · S2 (2) · S8 (8) · S7 (7) · S6 (6) · S5 (5) · S14 · S10 (0) · S9 (9) · (MEMORY)

R55 · R56 · R57 · R58 · J12

TP202 FM off set voltage (0mV) TP201

19kHz output TP151

E INPUT SELECTOR P.C.B.

INPUT SELECTOR: (TAPE) (AUX) (CD) (TUNER) (PHONO)

BALANCE: (LEFT) (RIGHT)

MUTING

J807 · J805 · J804 · L807 · L808 · Z803 · Q806 · Q805 · Q807 · Q808 · C822 · C825 · R830 · R827 · R834 · R835 · R831 · J806 · J803 A · J802 A · R821 · R823 · R824 · R802

S802 · S801 · S804 · S803 · S805 · S806 · S807 · S808 · J801 A · R807 · R808

D804 (Tape ind.) · D803 (Aux ind.) · D805 (CD ind.) · D806 (Tuner ind.) · D807 (Phono ind.)

Q812 · C829 · C830 · Q811 · Q814 · Q813 · C823 · R828 · C824 · R829 · R862 · R861 · R854 · R853 · R868

IC803 · IC804 · IC805 · IC802 · C826 · C827 · C828 · J808 · L806 · L805 · L803 · R832 · R826

C805 · C815 · C816 · C817 · C814 · R870 · Z802 · C818 · C819 · C820 · C821

D809 D810 D811 D812 D813 D814 D815 (Level display) · D816 (Muting ind.)

Q802 · R811 · R812 · C807 · Q801 · C806 · R803 · R804 · R805 · R806

IC801 · VR801 (VOLUME) · X801 · R813 · R810 · R809 · C808 · C803 · L802 · R816 · R814 · R801 · C804 · L801 · D801 · C801 · R820 · R818 · R819 · C813 · C812 · C811 · R815 · R822 · Q803 · R817 · C802 · C809 · C831 · Q815

A TUNER P.C.B.

SP3270

J12 · D15 · D16 · D17 · D18 · R24 · R42 · R40 · R50 · R52 · R51 · R54

15 16 17 18 19 20 21 22 23 24

AC IN
AC 220V (50/60Hz)
N
L
L701
J15
J14
SENSOR

K POWER SW P.C.B.

J13 J14
T701 (Power transformer)
F1 T630mA
C716
(S701)
POWER

L POWER SUPPLY P.C.B.

TIMER
R710
J701
J702
C717 C715 D711
R712

C PRESET TUNING P.C.B.
24 CHANNEL RANDOM PRESET TUNING
S4 (4) S3 (3) S2 (2) S1 (1)
S8 (8) S7 (7) S6 (6) S5 (5)
S14 S10 (0) S9 (9)
(MEMORY)
R55 R56 R57 R58
J12

S823 play—off—rec
S822 (REW AUTO EDIT)
S821 (TAPE EDIT)
R846 R844 R847
D820 (Edit ind.)
D823 (Rec ind.)
S820 S814 S824
(Play/▶ ind.)
D822
(Remote control ind.)
D842
D835
Q821
R869 R850 R849
S819
R845
Q810
S815 S816 S817
D832 D831 D833 D834 D836
J806
J807
D845
(FF/▶▶) (PLAY/▶) (STOP/■) (REW/◀◀)
DECK A (RECORD/PLAYBACK)
ACK MODE
● REC PAUSE ○ REC MUTE

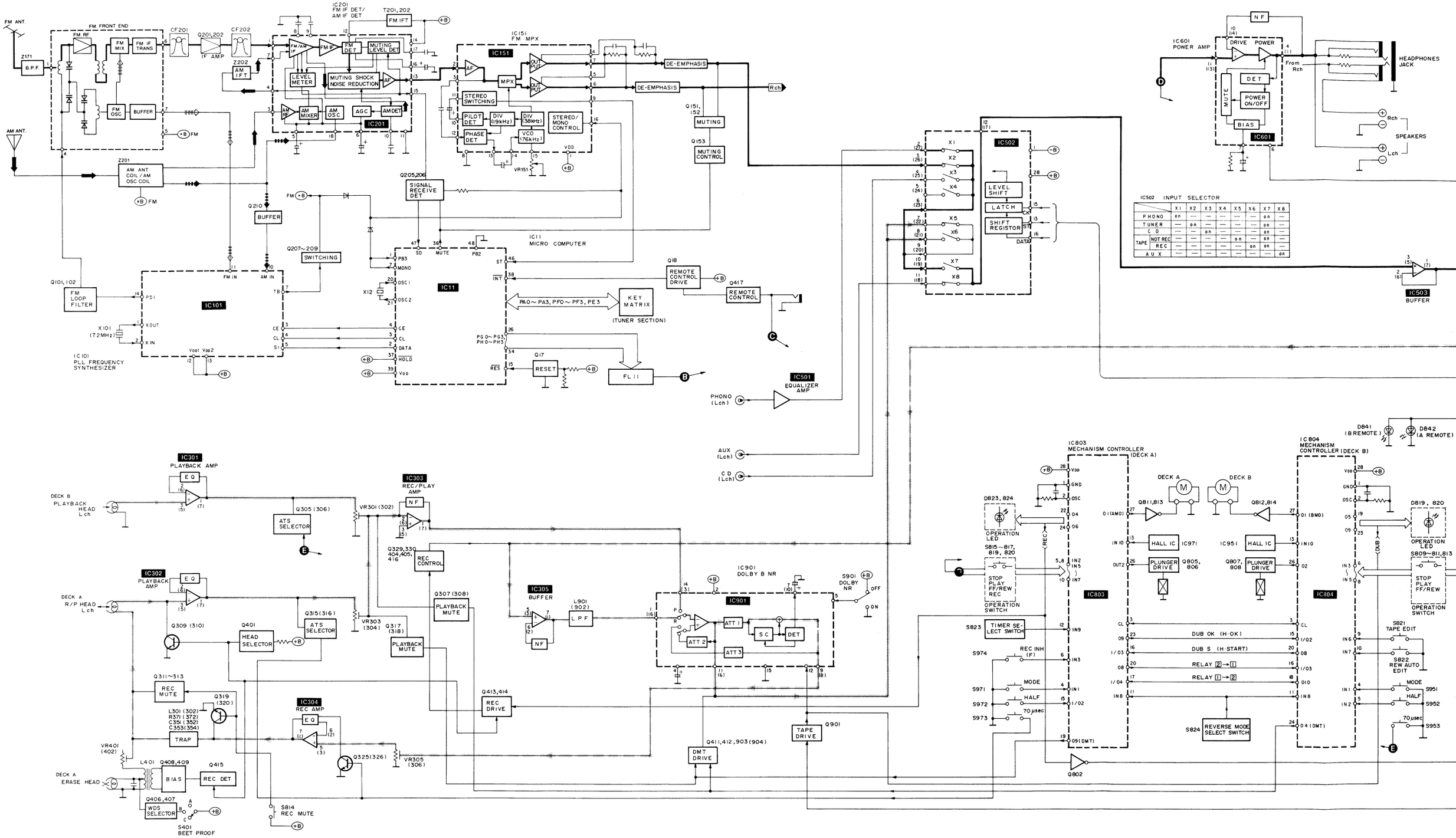
INPUT SELECTOR
(TAPE) (AUX) (CD) (TUNER) (PHONO)
BALANCE
(LEFT) (RIGHT)
MUTING
R821
S802 S801 S804 S803 S805 S806 S807 S808
J801A
R807 R808
D804 (Tape ind.)
D803 (Aux ind.)
D805 (CD ind.)
D806 (Tuner ind.)
D807 (Phono ind.)
R824 R802
R813 R809 C808
X801
C803
L802
R801
D801
L801 C801
R816 R814
R820 R818 R819
C813 C812 C811
C804
Z801
L804
Q802
R811 R812 C807
Q801
R803 R804 R805 R806
IC801
VR801 (VOLUME)
R815
R822
Q803
R817
Q815
C802 C809 C831
C827 C826 R832
J808
L806
C805 C815 C817 C816 C814
R870
Z802
D809 D810 D811 D812 D813 D814 D815
(Level display)
C818 C819 C820 C821
D816 (Muting ind.)
IC804
IC802
IC805
L803
R826

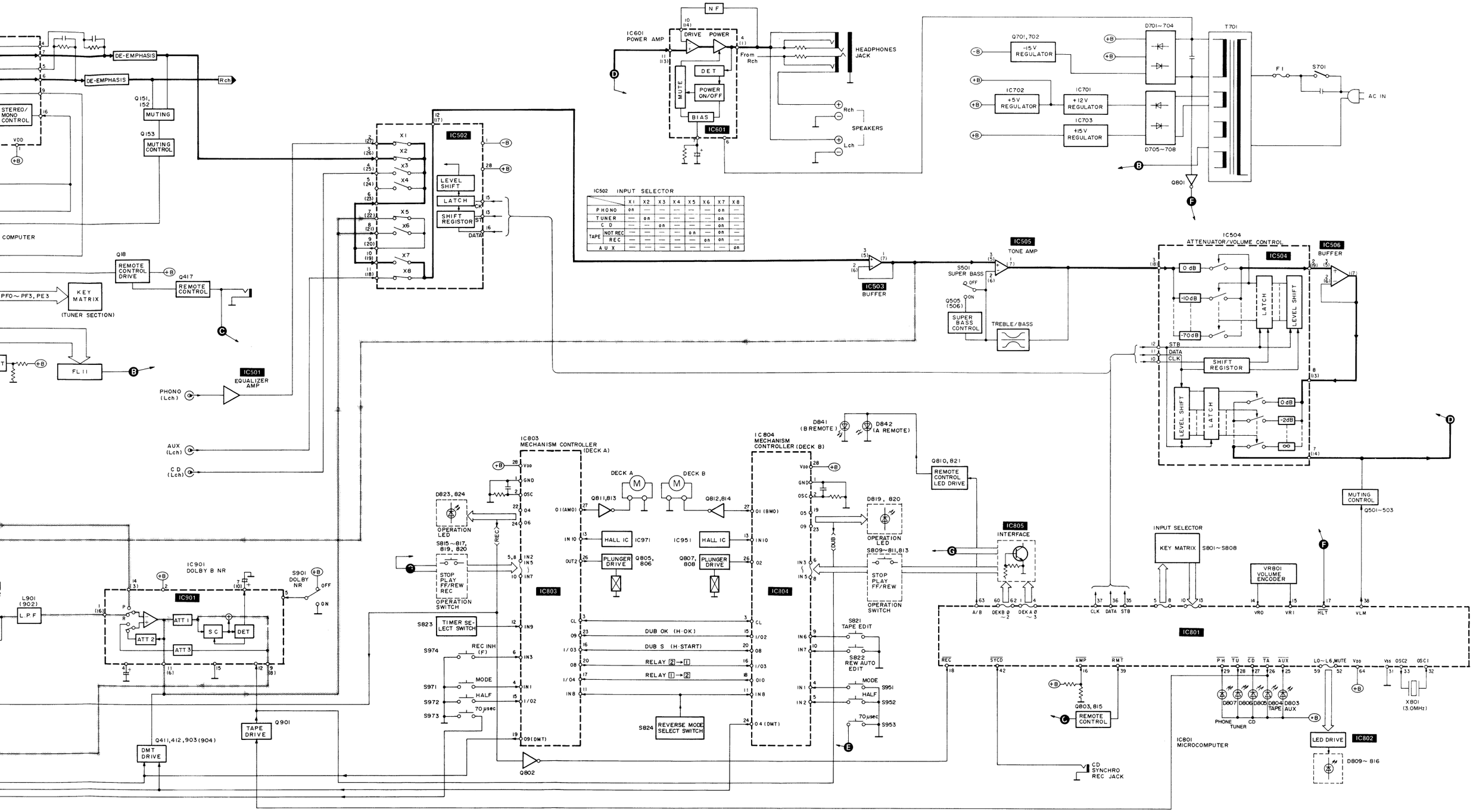
A TUNER P.C.B.

FM ANT 75Ω
AM ANT
AM LOOP ANT
L203
L204
Z171
C175
J501
R160
R108
C109
R107
Q102
Q101
R105
C108
R106
C106
Z1 FM FRONT END PACK
Z201
R230
C107
R229
R73
R75
C205
C222
R231
R104
D101
C105
C103
C177
C104
L102
C201
IC101
R232
C225
R205
R203
C204
R201
R177
C209
C202
R202
C227
Q201
Q202
*L6
L71A
Q209
R221
Q207
C226
C110
X101
C102
C101
Z202
C210
C211
C206
R247
R222
R220
R233
Q210
C71
CF202
C208
Q208
Q205
R214
R234
R71
Q71
D71
R72
C72
IC201
C176
R235
R218
D204
R216
R225
Q206
R217
R215
R219
C162
R168
R166
C215
C212
C217
C214
T201
T202
R157
R158
C165
C166
Q153
R167
R169
R170
Q151
R240
C228
R209
C216
R211
R155
L172
L74
L171
Q152
C230
C171
C156
R151
C151
R152
R153
R154
R173
R174
R159
R164
C164
C163
TP152
C157
C158
D206
R61
R60
C22
L12
TP202
FM off set voltage (0mV)
TP201
19kHz output
TP151
IC151
C160
R165
VR151
C161
C153
C159
C154
C152
D151
J12
R33
D15 D16 D17 D18
R24
R42
R40
R50
R51
R54
D7 (BLK)
D6 (WHT)
Q17
R17
R15
R16
R18
C15
C16
C17
C18
Q18
D12
D11
D14
D31
D34
D20
R32 R31 R30
R41
D10
IC11
X12
Z11
Z12
Z13
C13
D19
D8
D72
D9
R22
C12
C14
R19
C25
C26
D21
R20 R46
R53
R23
D13
J11
FL11
SJP32701

SA-X900 SA-X900

■ BLOCK DIAGRAM





Notes:

※ Ref. No. and Pin No. of IC in ( ) stand for is R-ch.

※ → FM Signal

➡ AM Signal

⇢ Playback Signal

⇢ FM OSC Signal

⇢ AM OSC Signal

⇢ Recording Signal

■ SCHEMATIC DIAGRAM

(This schematic diagram may be modified at any time with the development of new technology)

Note 1:

- **S1~10** : Preset tuning switches.
  [S1: CH1, S2: CH2, S3: CH3, S4: CH4, S5: CH5, S6: CH6, S7: CH7, S8: CH8, S9: CH9, S10: CH0]
- **S11, 12** : Band selector switches.
  S11: FM, S12: AM
- **S14** : Memory Switch.
- **S15** : FM mode selector Switch.
- **S16, 17** : Tuning switches.
  S16: DOWN, S17: UP
- **S401** : Beat proof selector switch.
  (A ↔ B ↔ C)
- **S501** : Super bass switch.
  (▟: OFF, ▁: ON)
- **S701** : Power switch.
  (▟: OFF, ▁: ON)
- **S801~805**: Input selector switches.
  [S801: AUX, S802: TAPE, S803: TUNER, S804: CD, S805: PHONO]
- **S806, 807** : Balance control switches.
  S806: LEFT, S807: RIGHT
- **S808** : Muting switch.
- **S809, 815** : Fast-forward switch (DECK B/A).
- **S810, 816** : Playback switch (DECK B/A).
- **S811, 817** : Stop switch (DECK B/A).
- **S813, 819** : Rewind switch (DECK B/A).
- **S814** : Record-muting switch (DECK A).
- **S820** : Recording pause switch (DECK A).
- **S821** : Edit-recording switch.
- **S822** : Automatic rewind/edit-recording switch.
- **S823** : Timer stand-by switch.
  (REC ↔ OFF ↔ PLAY)
- **S824** : Playback mode selector switch.
- **S901** : Dolby noise-reduction switch.
  (▟: OFF, ▁: ON)
- **S951, 971** : Mechanical mode detector switch. (DECK B/A)
- **S952, 972** : Mechanical half detector switch. (DECK B/A)
- **S973** : Mechanical rec inhibit detector switch. (DECK A)
- **S953, 974** : Mechanical CrO_2 detector switch. (DECK B/A)
- *L6 is coil formed on the P.C.B. and are thus not found on the replacement parts list.

- Signal line
  ▭▭▷ : FM signal ▭▭▷ : FM OSC
  ▬▬▶ : AM signal ▬▬▶ : AM OSC
  ▒▒▒ : AF signal (Lch)
  ▭▭▷ : Tape Record signal ▒▒▷ : Tape playback signal
  ─▭─ / ···▭··· : Positive and negative voltage line
- Important safety notice:
  Components identified by ⚠ mark have special characteristics important for safety. When replacing any of these components, use only manufacturer's specified parts. Indicated voltage values are standard values for the unit measured by the DC electronic circuit tester (high-impedance) with the chassis taken as standard. Therefore, there may exist some errors in the voltage values, depending on internal impedance of the DC circuit tester.
- All voltage values shown in circuitry are DC voltage in FM signal (Stereo signal) reception mode.

*Figures in ( ) Stand for DC-voltage in AM signal reception mode
*Figures in 《 》Stand for DC-voltage in playback signal reception mode
*Figures in 〈 〉Stand for DC-voltage in REC signal reception mode
*Figures in ▭ Stand for DC-voltage in muting mode.

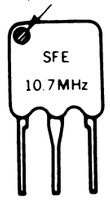
***Caution!**
IC and LSI are sensitive to static electricity.
Secondary trouble can be prevented by taking care during repair.
*Cover the parts boxes made of plastics with alminum foil.
*Ground the soldering iron.
*Put a conductive mat on the work table.
*Do not touch the legs of IC or LSI with the fingers directly.

Note 2:

- **Use of ceramic filters in pairs**

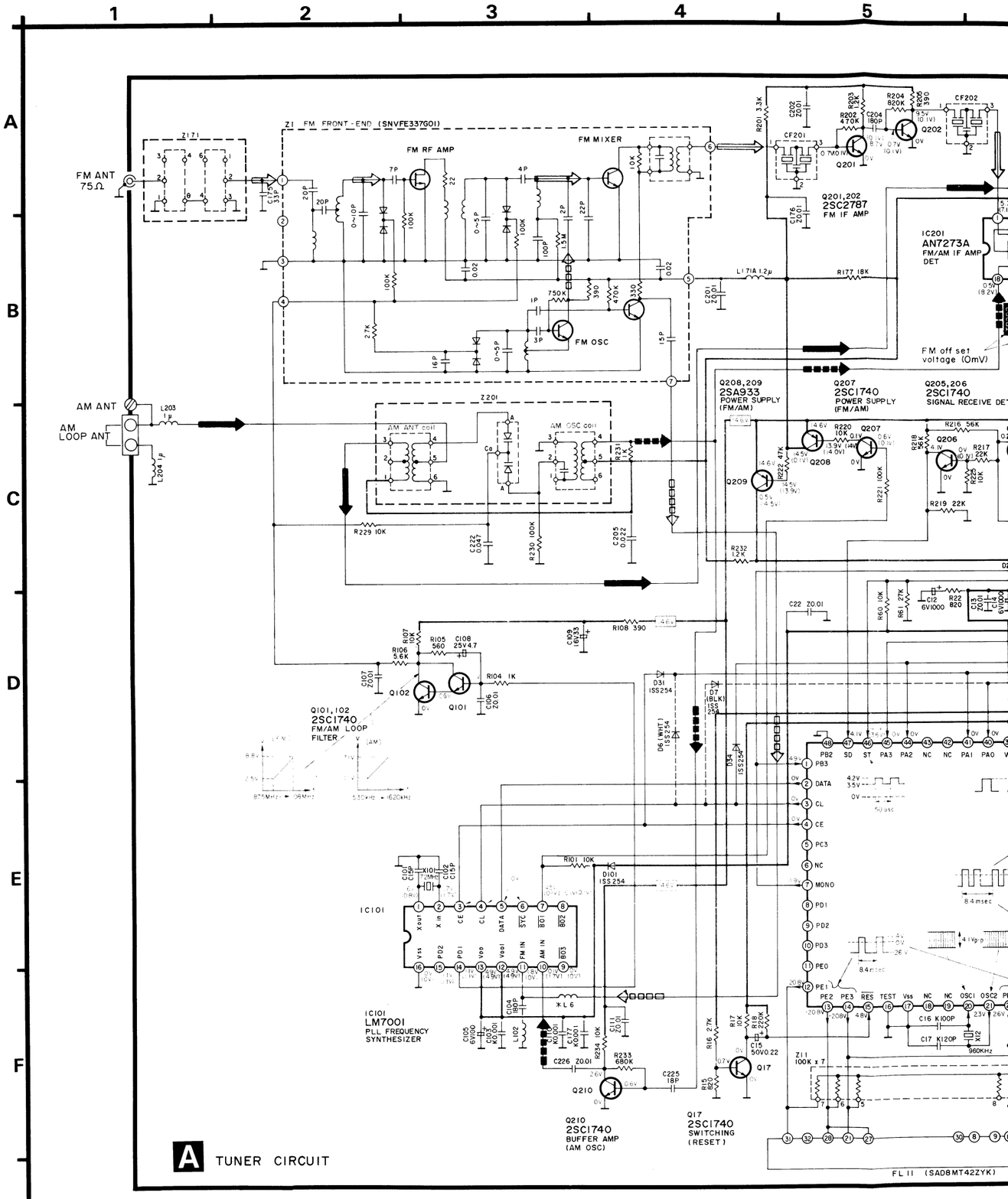
The ceramic filters (CF201, CF202) for FM-IF circuit are available in three versions. For this circuit, be sure to use the ceramics of the same version in a pair.
At repairing and replacement, pay close attention to the diodes (D6, D7) for use as different diodes must be used depending on each version of the ceramic filters.

Color marking
(Red, Black or White)



VERSION (Color)	D6	D7	CENTER FREQUENCY
Black	×	○	10.65MHz
Red	×	×	10.70MHz
White	○	×	10.75MHz

Note: ○ mark: Diode is used.
× mark: Diode is not used.



A TUNER CIRCUIT

he

: FM OSC
: AM OSC

: Tape playback signal
e voltage line

pecial characteristics
y of these components,
Indicated voltage values
by the DC electronic
assis taken as
he errors in the voltage
of the DC circuit tester.
DC voltage in FM signal

AM signal reception mode
playback signal reception

REC signal reception

nuting mode.

y.
king care during repair.
th alminum foil.

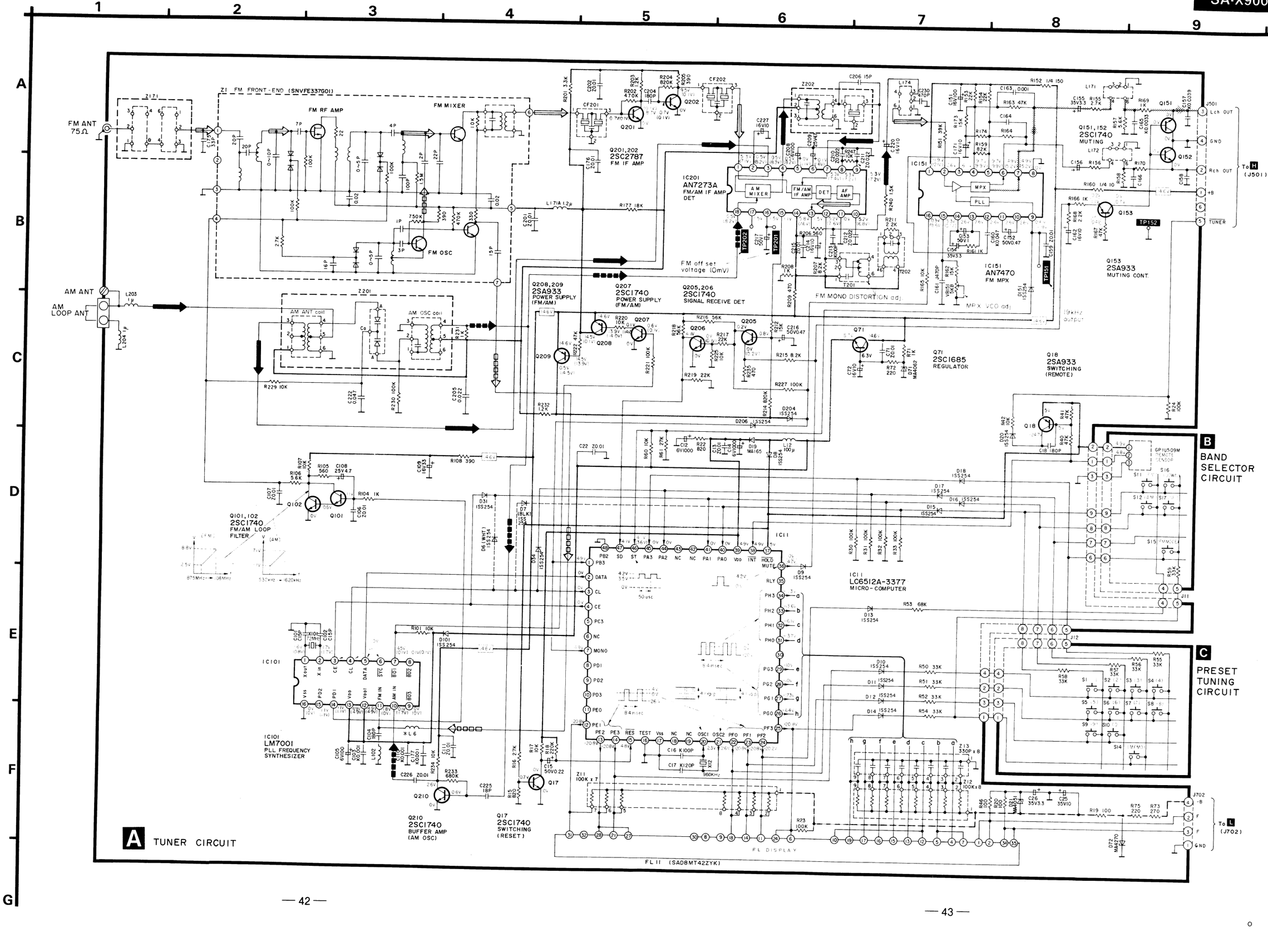
fingers directly.

M-IF circuit are available in
to use the ceramics of the

ttention to the diodes (D6,
used depending on each

D7	CENTER FREQUENCY
○	10.65MHz
×	10.70MHz
×	10.75MHz

ed.
t used.



SA-X900 SA-X900

10 11 12 13 14 15 16 17 18 19

To H (J803B)

MOTOR DRIVE CIRCUIT

MOTOR (DECK B) M J809 J810

MOTOR (DECK A) M J811 J812

Q811 Q812 Q813 Q814

R852 470 R851 470 R854 4.7K R853 4.7K

C829 220 C830 220

Q811,812 2SB621 MOTOR DRIVE

Q813,814 2SC1740 MOTOR DRIVE

J803A DMT(A) DMT(B) DUB REC MUTE 7Op(B) 7Op(A) +B GND

E INPUT SELECTOR CIRCUIT

SYSTEM CONTROL CIRCUIT

IC805 AN90B22 INTERFACE

IC801 LC6554H-3635 MICRO COMPUTER

IC802 AN90B22 LED DRIVE

D809–815 LN081450P LEVEL DISPLAY IND

D816 LN081450P MUTING IND

Z802 1K x 8

R826 22K L803 100μH R870 2.7K

C831 6.3V1000 C804 6.3V1000 C805 6.3V1000 C802 6.3V1000 C803 6.3V1000 R801 1K

DECK A0 DECK A1 DECK A2 DECK A3 SO SI S2 S3 CD POWER KO KI K2 K3 VRO VRI AMP HALT REC COED T PLAY CDPW EDOK EO NC AUX TO CD TUN PH TEST Vss OSC1

D Q810,821 2SA933 LED DRIVE

D819,822,841,842 LN3466P-C

D820,823 LN846RP-C

DECK B D819 D820 R841 180 R842 270

DECK A D823 D822 R844 270 R845 180

J806 J807

S809 S810 S811 S813 S814 S815 S816 S817 S819 S820 S821 S822

D825–836 1SS254

S823 TIMER

S824 PLAYBACK MODE

R846 2.2K R847 2.2K R848 10K R849 180 R850 180 R868 10K R869 3.3K

D841 D842 D845 1SS254 Q821 Q810

Q805 Q806 Q807 Q808

C822 Z0.1 C825 Z0.1 R827 1K R829 10K R830 1K R831 10K

L807 27μH L806 27μH L808 2.7μH L805 27μH

IC803 TC9312AN-073 MECHANISM CONTROL (DECK A)

Q805,807 2SB1030 PLUNGER DRIVE

Q806,808 2SC1740 PLUNGER DRIVE

IC804 TC9312AN-072 MECHANISM CONT. (DECK B)

C823 J00082 R828 33K C824 Z0.1 C826 J00082 R832 33K C827 6V47

MECHANISM CONTROL CIRCUIT

Z803 4.7K x 4

R834 4.7K R835 4.7K C828 6V47

Q815 DTC114 SWITCHING (REMOTE)

Q803 2SA933 SWITCHING (REMOTE)

R822 4.7K R817 10K

R823 100K R824 100K R825 100K

R818 47K R819 47K R820 47K R821 47K R822 47K

C811 100P C812 100P C813 100P C809 50V2.2

R816 560 X801

J805 J971 IC971 DN6851A HALL IC D971 RVDISS133 S971 S972 S974 S973

J804 J951 IC951 DN6851A HALL IC D951 RVDISS133 S951 S952 S953

PLUNGER

F MECHANISM (DECK A) CIRCUIT

G MECHANISM (DECK B) CIRCUIT

14 15 16 17 18 19 20 21 22 23

CIRCUIT

E INPUT SELECTOR CIRCUIT

SYSTEM CONTROL CIRCUIT

MECHANISM CONTROL CIRCUIT

MECHANISM (DECK A) CIRCUIT

G MECHANISM (DECK B) CIRCUIT

H MAIN (PHONO EQ / INPUT SELECTOR / ATT
REC AMP / DOLBY NR AMP / POWER AMP

DECK B
L ch
PLAYBACK HEAD
R ch

DECK A
L ch
R/P HEAD
R ch

DECK A
ERASE HEAD

CASSETTE DECK CIRCUIT

DOLBY NR CIRCUIT

IC301 AN6558F PLAYBACK AMP

Q305,306 2SC1740 SWITCHING (TAPE SELECT)

Q307,308 2SD1450 MUTING

P.B gain (Lch) adj (DECK B)

P.B gain (Rch) adj (DECK B)

IC303 AN6552F PRE AMP (DECK A/B)

Q309,310 2SC1740 PLAYBACK·OFF

Q311~313 2SC2784 HEAD SELECT

P.B. gain (Lch) adj.(DECK A)

Q315,316 2SC1740 SWITCHING (TAPE SELECT)

Q317,318 2SD1450 MUTING

IC302 AN6558F PLAYBACK AMP

Bias current adj (L ch)

Bias current adj (R ch)

Erase current adj

Erase current adj

Q401 2SA933 HEAD SELECT

Q406,407 2SC2784 WDS SELECT

Q408,409 2SD1450 BIAS OSC

Q415 2SC1384 REC DET.

Q319,320 2SD1450 MUTING

Q325,326 2SC1740 TAPE SELECT

Q417 2SC1740 SWITCHING (REMOTE)

IC305 AN6552F BUFFER AMP

IC901 CXA1101P DOLBY NR

Q901 2SC1740 SWITCHING

Q903,904 2SD1450 MUTING

Playback gain adj.

IC304 AN6552F REC AMP

Overall gain adj (L ch)

Overall gain adj (R ch)

Q329,330 2SD1450 ALC CONTROL

Q404,405 2SC1740 ALC CONTROL

Q416 2SA933 ALC CONTROL

Q412 2SC1740 MUTING CONT.

Q411 DTA114 MUTING CONT.

Q413 2SB621 SWITCHING

Q414 2SD1450 SWITCHING (REC·ON)

IC503 AN6558F BUFFER AMP

IC501 AN6558F PHONO EQ

IC502

PHONO EQ AMP CIRCUIT

INPUT SEL

CD SYNCHRO-REC

REMOTE CONTROL OUT

To E (J803A)

To E (J802A)

To E (J801A)

GND Lch Rch PHONO

33 34 35 36 37 38 39 40 41 42 43

H MAIN (PHONO EQ / INPUT SELECTOR / ATTENUATOR / DECK A, B PLAYBACK AMP/ REC AMP / DOLBY NR AMP / POWER AMP / POWER SUPPLY) CIRCUIT

VOLUME CONTROL CIRCUIT

IC504 TC9212P ATTENUATOR (VOLUME)

IC503 AN6558F BUFFER AMP

IC506 AN6558F BUFFER AMP

INPUT SELECTOR CIRCUIT

Q901 2SC1740 SWITCHING

Q903,904 2SD1450 MUTING

Q904

Q507 ~ 510 2SC1740 SWITCHING

Q413 2SB621 SWITCHING

Q414 2SD1450 SWITCHING (REC·ON)

Q510

IC502 TC9164N INPUT SELECTOR

IC501 AN6558F PHONO EQ

PHONO EQ AMP CIRCUIT

PHONO

CD

AUX

J801B

To E (J801A)

J501

To A (J501)

I TONE VR CIRCUIT

IC505 AN6558F TONE AMP

Q505,506 2SC1740 SUPPER BASS AMP

S501 (SUPER BASS)

POWER AMP CIRCUIT

IC601 SV1310B POWER AMP

Q501 Q502 2SD1450 MUTING

Q503 2SA933 MUTING CONTROL

L ch

SPEAKERS (8~16Ω)

R ch

J HEADPHONES/ DOLBY NR SW CIRCUIT

HEADPHONES

S901 (DOLBY NR)

POWER SOURCE CIRCUIT

IC701 AN7812 REGULATOR

IC702 AN78M05 REGULATOR

IC703 AN7815 REGULATOR

Q701 2SB941 REGULATOR

Q702 2SA933 REGULATOR

K POWER SW CIRCUIT

AC 220V (50/60Hz)

L POWER SUPPLY CIRCUIT

To A (J702)

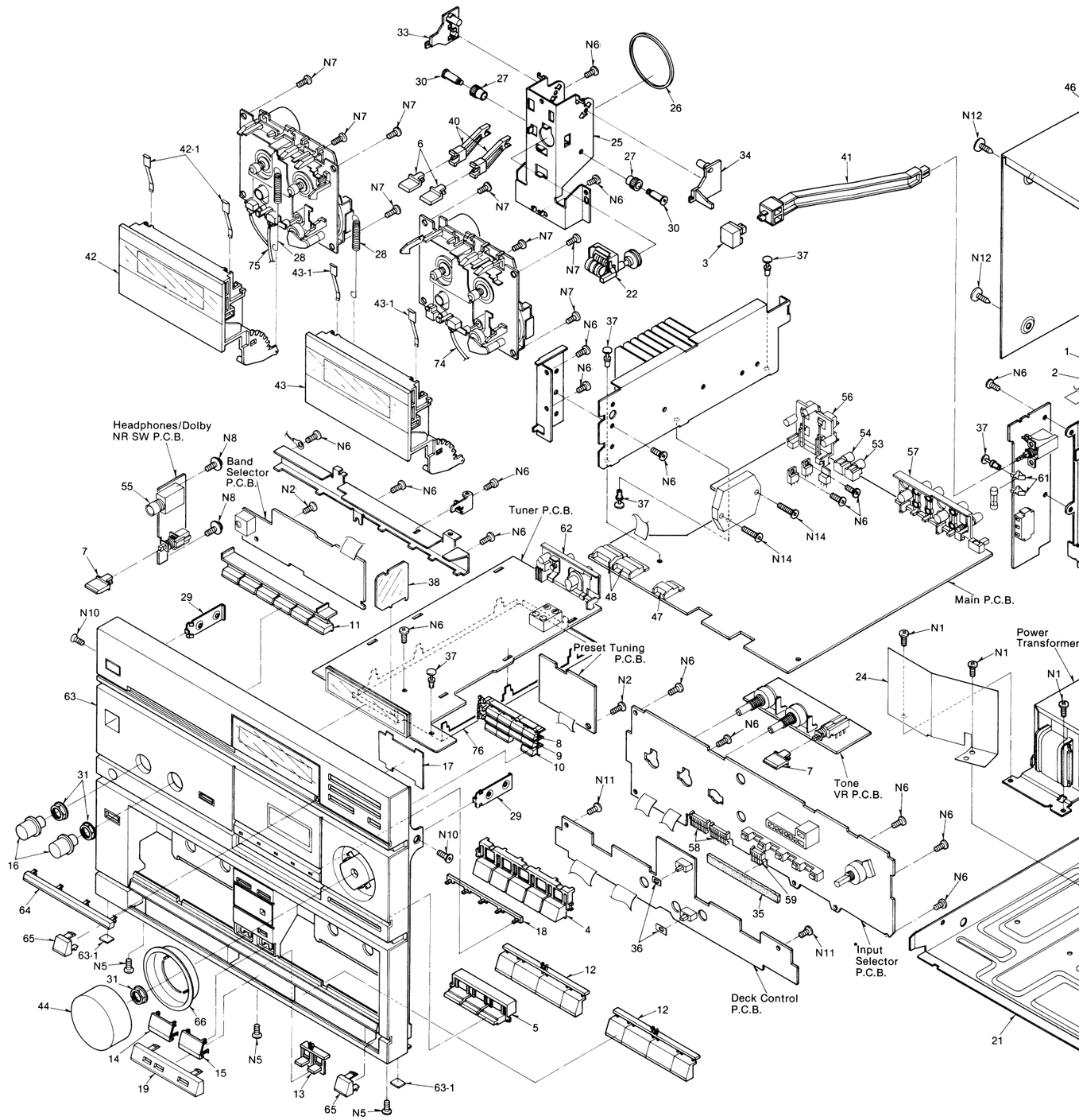
■ REPLACEMENT PARTS LIST

Notes : * Important safety notice :
Components identified by ⚠ mark have special characteristics important for safety. When replacing any of these components use only manufacturer's specified parts.
* Bracketed indications in Ref. No. columns specify the area. (Refer to the first page for area.)
Parts without these indications can be used for all areas.

Ref. No.		Part No.	Description
CABINET AND CHASSIS			
1	⚠	SJA138-3	POWER CORD
2		SHR127	SPACER, POWER CORD
3		SBC666-1	BUTTON, POWER SW
4		SBC925-1C	BUTTON, SELECTOR
5		SBC926-1	BUTTON, BALANCE
6		SBC928	BUTTON, EJECT
7		SBC937	BUTTON, DOLBY
8		SBC969D	BUTTON, PRESET
9		SBC969E	BUTTON, PRESET
10		SBZ9104	BUTTON, PRESET
11		SBZ9107	BUTTON, FUNCTION
12		SBCF12A	BUTTON, CASSETTE
13		SBCF14	BUTTON, REC
14		SBC979A2	BUTTON, EDIT
15		SBC979B2	BUTTON, EDIT
16		SBN1235	KNOB, TONE
17		SDUF3A	LED PLATTE
18		SGL242	ORNAMENT
19		SGXF13A	ORNAMENT
20		SGPF13A	REAR PANEL
(EG)			
20		SGPF13B	REAR PANEL
(EI)			
21		SKU11651-1	BOTTOM BOARD
21-1		SKL293	FOOT
22		SJN29	TAPE COUNTER
24		SMCF10	SHIELD COVER
25		SMQF7	BRACKET
26		SMQ20024	COUNTER BELT
27		SMQ4096	GEAR
28		SMQ60018	SPRING
29		SNEF2	ORNAMENT SCREW
30		SNE2120	NUT
31		SNE4021	NUT
33		SHEF1	LEVER L
34		SHEF2	LEVER R
35		SHGF6	RUBBER
36		SHR5312	SHEET
37		SHR9094	LATCH
38		SHR9862	HOLDER
39		SHR301	CLAMPER
40		SUBF3	CONNECTION ROD
41		SUBF4	CONNECTION ROD
42		SYEF11	CASSETTE HOLDER (A)
42-1		QBP2006A	SPRING
43		SYEF12	CASSETTE HOLDER (B)
43-1		QBP2006A	SPRING
44		SBN1236	KNOB
46		SKCAX900L-KE	CABINET BODY
47		SJS50680WL	SOCKET(6P)
48		SJS51080WL	SOCKET(10P)
49		SJTD313	TERMINAL(3P)
49		SJTD513	TERMINAL(5P)
50		SJT3513	CONNECTOR(5P)
51		SJT30344-H	SOCKET(3P)
51		SJT30541LX-H	TERMINAL(5P)
52		SJT30440LX-V	CONNECTOR(4P)
52		SJT30640LX-V	CONNECTOR(6P)
52		SJT30743LX-V	CONNECTOR(7P)
52		SJT30843-V	CONNECTOR(8P)
52		SJT30940LX-V	CONNECTOR(9P)
53		SJJ141	M3 JACK, CD
54		SJJ141-1	M3 JACK, REMOTE CONT. OUT
55		SJJ63E	JACK, HEADPHONE
56		SJF5404	TERMINAL PLATE
57		SJF3062-16N	TERMINAL PLATE
58		SJT31047WL	CONNECTOR(10P)
59		SJT30647WL	CONNECTOR(6P)
60		SJSD1205	CONNECTOR
61	⚠	SJT388	FUSE HOLDER
62		SJF8305N	TERMINAL BOARD
63		SGYAX900-KE	PANEL
63-1		SKL293	FOOT
64		SGX7971A	ORNAMENT
65		SGXF11	ORNAMENT
66		SGXF12	ORNAMENT
67		SJS5529	SOCKET(5P)
68		SJS5523	SOCKET(5P)
69		SJT783	CONTACT
70		SJT785	CONTACT
71		SJT3511	CONNECTOR(5P)
72		SJS50372PH	CONNECTOR
72		SJS50572PH	CONNECTOR
73		SJT797	LUG TERMINAL
74		SWKAX900EKB1	CORD (B)
75		SWKAX900EKA1	CORD (A)
76		SMCF17	SHIELD COVER
77		SMC1200	SHIELD COVER
78		SMX891	SHIELD SPACER
79		SUWF19	BRACKET
SCREWS, WASHERS AND NUTS			
N1		XTB3+6F	SCREW
N2		XTB3+8JFZ	SCREW
N3		XTBS3+10JFZ1	TAPPING SCREW
N5		XTB3+8J	SCREW
N6		XTB3+10J	SCREW
N7		XTB3+10JFR	SCREW
N8		XTWS3+10Q	SCREW
N10		XTS3+8F	SCREW
N11		XTS3+10G	TAPPING SCREW
N12		SNE2095-5	SCREW
N14		XTB3+16J	SCREW

Ref. No.	Part No.	Description
PACKING MATERIAL		
P1	SPHF3	PACKING SHEET
P2	XZB70X70C02	POLYETHYLENE BAG
P3	SPGF18	PACKING CASE
P4	SPS4946-2	PAD
P5	SPS4947-2	PAD
P6	SPS4948	PAD
P7	SPS4949-1	PAD
P8	SPSF23	PAD
ACCESSORIES		
A1	SSA270M	FM ANTENNA
A2	SPB1163T	LOOP ANTENNA
A4 (EI)	SQFF38	INSTRUCTION BOOK
A4 (EG)	SQFF39	INSTRUCTION BOOK
A5	UM-4NEP-2S	BATTERY

■ CABINET PARTS LOCATION



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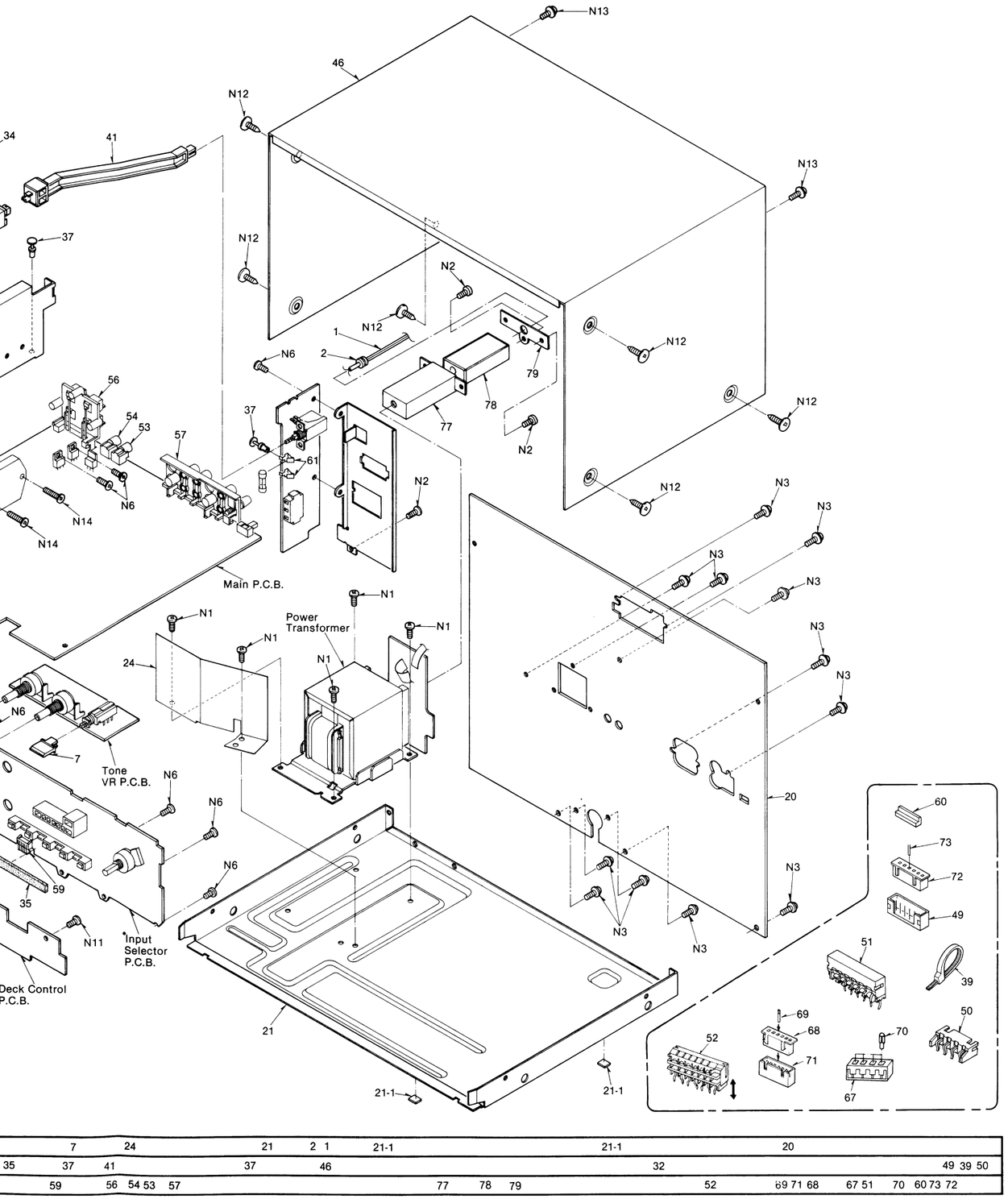
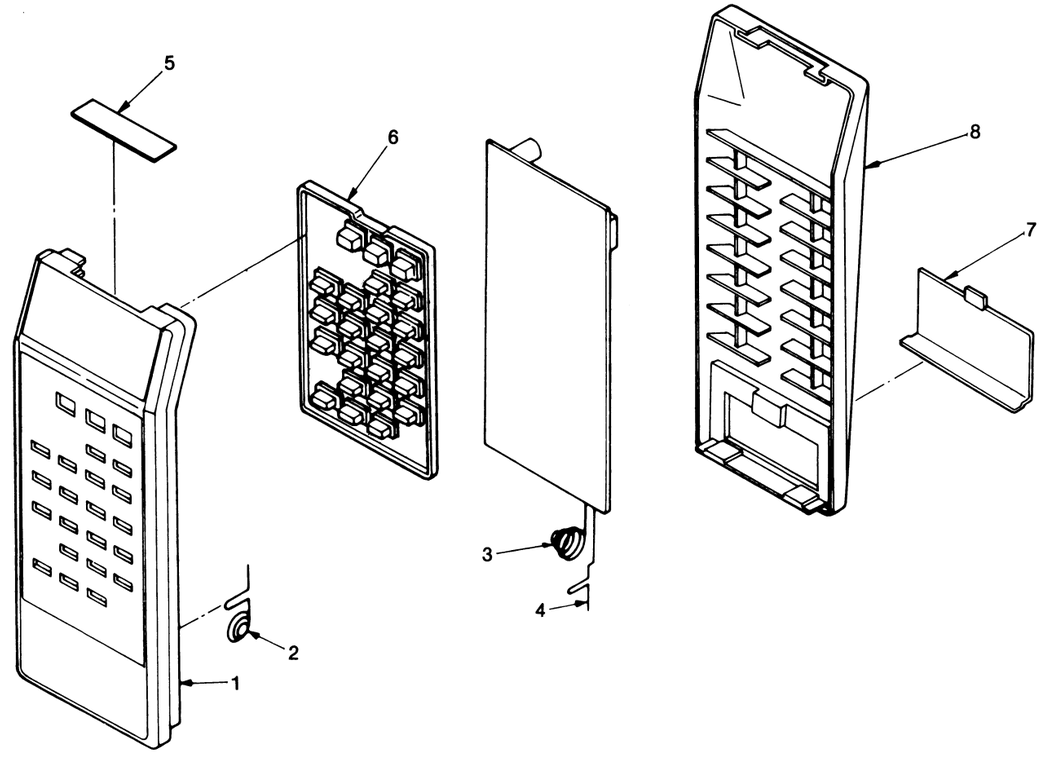


7 24 21 2 1 21-1 21-1 20

35 37 41 37 46 32 49 39 50

59 56 54 53 57 77 78 79 52 69 71 68 67 51 70 60 73 72

• Remote-Control Transmitter



■ REPLACEMENT PARTS LIST

Notes : * Important safety notice :
Components identified by ⚠ mark have special characteristics important for safety. When replacing any of these components use only manufacturer's specified parts.
* Bracketed indications in Ref. No. columns specify the area. (Refer to the first page for area.)
Parts without these indications can be used for all areas.
* Remote Control Ass'y:
Supply period for three years from termination of production.

Ref. No.	Part No.	Description
REMOTE CONTROL ASS'Y		
INTEGRATED CIRCUITS		
IC1	M50467018FP	I.C
TRANSISTORS		
Q1	UN1231	TRANSISTOR
DIODES		
D1	SE303AYRF	L.E.D
COIL		
L1	ELEA101JA	COIL
OSCILLATOR		
X1	CSB420PB1	OSCILLATOR
RESISTORS		
R1	ERDS2TJ1R0	CARBON, 1Ω, 1/4W
CAPACITORS		
C1	ECKD1H471KB	CERAMIC, 470PF, 50V
C2	ECKD1H121KB	CERAMIC, 120PF, 50V
C3	ECEA0GK101	ELECTROLYTIC, 100μF, 4V
MECHANISM PARTS		
1	UR64VCS569	UPPER CASE
2	UR64TD374	BATTERY TERMINAL(COMMON)
3	UR64TD813	BATTERY TERMINAL(-)
4	UR64TD812	BATTERY TERMINAL(+)
5	UR52SB327	PLATE(SMOKE)
6	UR64CT811E	RUBBER CONTACT
7	UR64EC804	BATTERY COVER
8	UR64CS803A	LOWER CABINET
REMOTE CONTROL ASS'Y		
RC1	EUR64791	REMOTE CONTROL UNIT

Printed in Japan
H880702300 YY/TN